



Software Convener Report



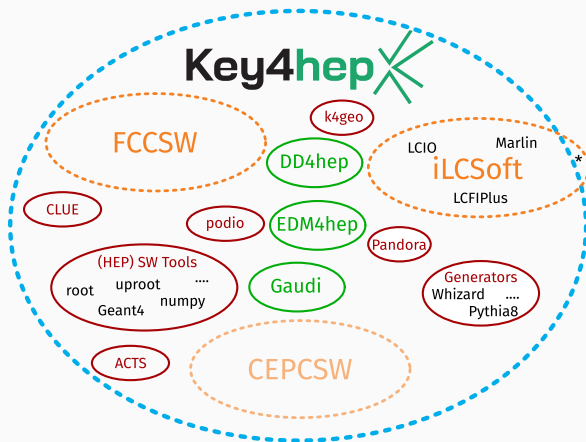
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ILD Workshop 2026, CERN
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Aims of this talk

- Give brief overview of the current status
- Foster a **discussion on focus in next few years** (FCC-ee go/no-go 2028)
 - **Align on a coherent set of** (achievable) **goals**
- Deliberately short & high level
 - (Some) technical details in other presentations at this workshop

High level view of the current software status

- Key4hep is production ready and in use
 - ILD full reconstruction available via *Marlin Wrapper*
 - (Can still use Marlin and all the tools we developed)
 - [Ongoing migration of processors](#)
 - **New developments should use Gaudi and EDM4hep!**
- Many developments in FCCee context
 - See other talks in this session

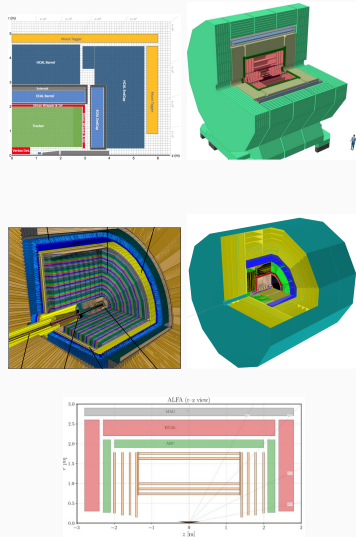


ILD samples

- ILD has produced effectively the full SM @250 GeV with its own production system
- Dedicated samples for physics studies also exist at other energies
- Solid, but by now no longer state-of-the-art (high level) reconstruction
 - Limited AI/ML for flavor tagging & PID
- Access to samples requires ILD membership

ILD in the context of FCC-ee

- Other FCC-ee detector concepts deliberately no proto-collaborations yet
 - Many centralized efforts
- ILD with well established structure and processes
- For FCC-ee studies we **should align processes as much as possible with other concepts**
 - Do we need to change our by laws for this (e.g. re: sample sharing)?
 - Clearly visible sign of good will from our side
 - Reduces required efforts on our side
- Technical details can be sorted out after decision
 - VO membership, storage locations, etc.



The TPC as defining feature of ILD

- Main question: **Can we operate a TPC at FCC-ee (Tera-Z)?**
- This is an (almost) unique ILD feature - work will have to be done by us
 - Close to establishing a basic full reconstruction chain for FCCee (V. Schwan)
 - In the midterm we should use ACTS for track reconstruction in the TPC
 - Done by AGORA/CEPC and sPHENIX but adaption requires significant work
- Update to (Pixel) readout?
- Properly assessing distortions will require detailed simulation
 - Adapt from AGORA/CEPC Garfield simulations
 - ML to do event-by-event corrections taking into account previous BXs?

We will need more person power to address these questions

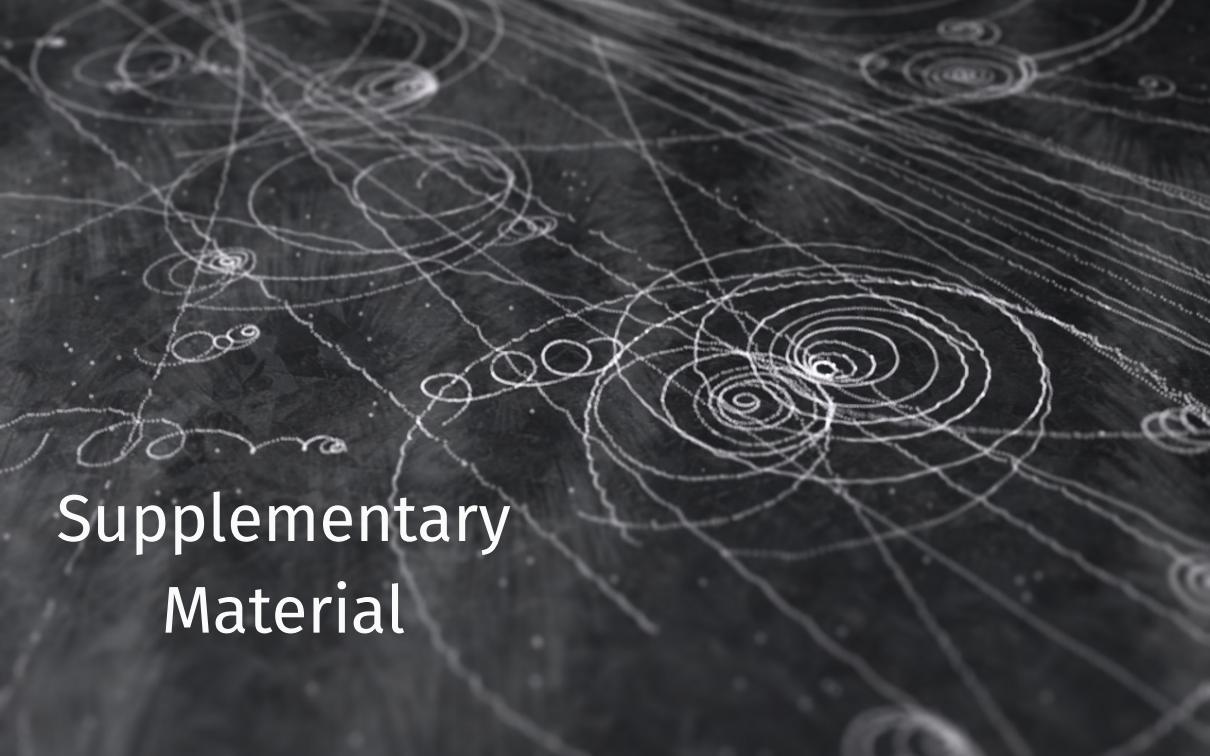
Group structure & people

- Likely to keep a similar structure as currently exists
- In discussions with several people for filling vacant positions
- Final structure might also be influenced by outcomes of discussions at this workshop
- Overall people working on software topics for ILD are stretched very thin
 - We will have to prioritize what we can actually do

Interested in coordinating efforts? Reach out to me

Closing Thoughts

- ILD has large existing samples for studying physics at an LC
 - Can be studied using Key4hep!
- **Establishing operability of a TPC at FCC-ee is the key goal in the next years**
 - Ongoing efforts for full reconstruction (tracking chain) to do some physics
 - Proper assessment will be a major R&D line
- We will need more person power to work on this
- Aligning as far as possible with FCC-ee processes should be the goal

The background of the slide is a dark gray, textured surface. It is covered with numerous white, hand-drawn or etched lines. These lines form a complex network of patterns, including several sets of concentric circles of varying sizes, some straight lines, and many overlapping, irregular loops and swirls. The overall effect is one of organic complexity and interconnectedness.

Supplementary Material

Longer term work that needs to be tackled

- Studies of systematics including experiment conditions (alignment, data based calibration methods, ...)
 - Other concepts will reach this point as well, we should collaborate with them
 - Will need a lot of technical work
 - Conditions for simulation
 - Conditions support in Key4hep framework
 - Development of (data based) calibration methods
- Including timing in (track) reconstruction
 - ACTS should have support for this, but we haven't exercised this yet