

SiW-ECAL Contributions to DRD6

CERN, IFIC, IJClab, KEK, Kyushu, LLR, LPNHE, Omega

SiW-ECAL Prototyping

- **2023:** Build a prototype with uniform layers
(FEV2.1 + 500 μm Sensors)
PCB prod (ongoing), ASICs tests (ongoing), Gluing improvement (ongoing), Metrology + Assembly + metrology; Sampling test of wafers; All material avail.
analysis of existing data (prepare G4 sample ?)
- **2024:** Test in beam (standalone, w AHCAL)
Prepare setup with 2 towers
 - 7–12 layers, same ASUs + 40 Wafers (*if funding*)
 - \rightarrow Dark γ , QED exp:
LUXE@XFEL, EBES@KEK, Lohengrin@ELSA
- **2025:** Test a 2 tower design : BT, Experiments
 - If funding (ANR?) prepare for 3 towers for LUXE
- **Far Side** : new prototype \rightarrow pilote module (1M ch)

SiW-ECAL Design for Detectors (\leftrightarrow ECFA WG3 &ILD)

- **2023:** Prepare specifications for low occupancy, continuous operations ASICs
 - power, rates, etc. Test of various ASICs hypothesis, Check for active cooling needs in ECAL
 - Specify requirement on precision on timing in PFA/PID
Dedicated layers (LGADs) vs Bulk Timing
- **2024:** Prepare design
 - Electronics, DAQ \leftrightarrow DRD7.1, 7.2
 - Integrated cooling, *if needed* \leftrightarrow TF8.2
 - Optimisation of the ECAL (granul, resolutions E, t)
 - Mechanics & monitoring \leftrightarrow TF 8.3, 8.4
- **2025:** Blueprint (EDR) of pilote module for Higgs factory

Links to other DRDs/TFs

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All :

- DRD7.2: ASICs, power management
- DRD7.5: DAQ, clock distrib, data
- DRD8.2: Cooling (Mostly ECAL)
- DRD8.3 & 8.4: Mechanics & Envir Monitoring, integration

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Si-ECAL, dECAL:

- DRD3.1: R&D on MAPs, SMADs
- DRD3.2: LGADs (timing layer)

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