SiD 2025

- Start with a look back to 2021 document

- What has changed since 2021?

- R&D in the HFCC context

- Working with the RDCs, CPAD, DRDs

- Submission to The European Strategy Update?

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Updating the SiD Detector concept

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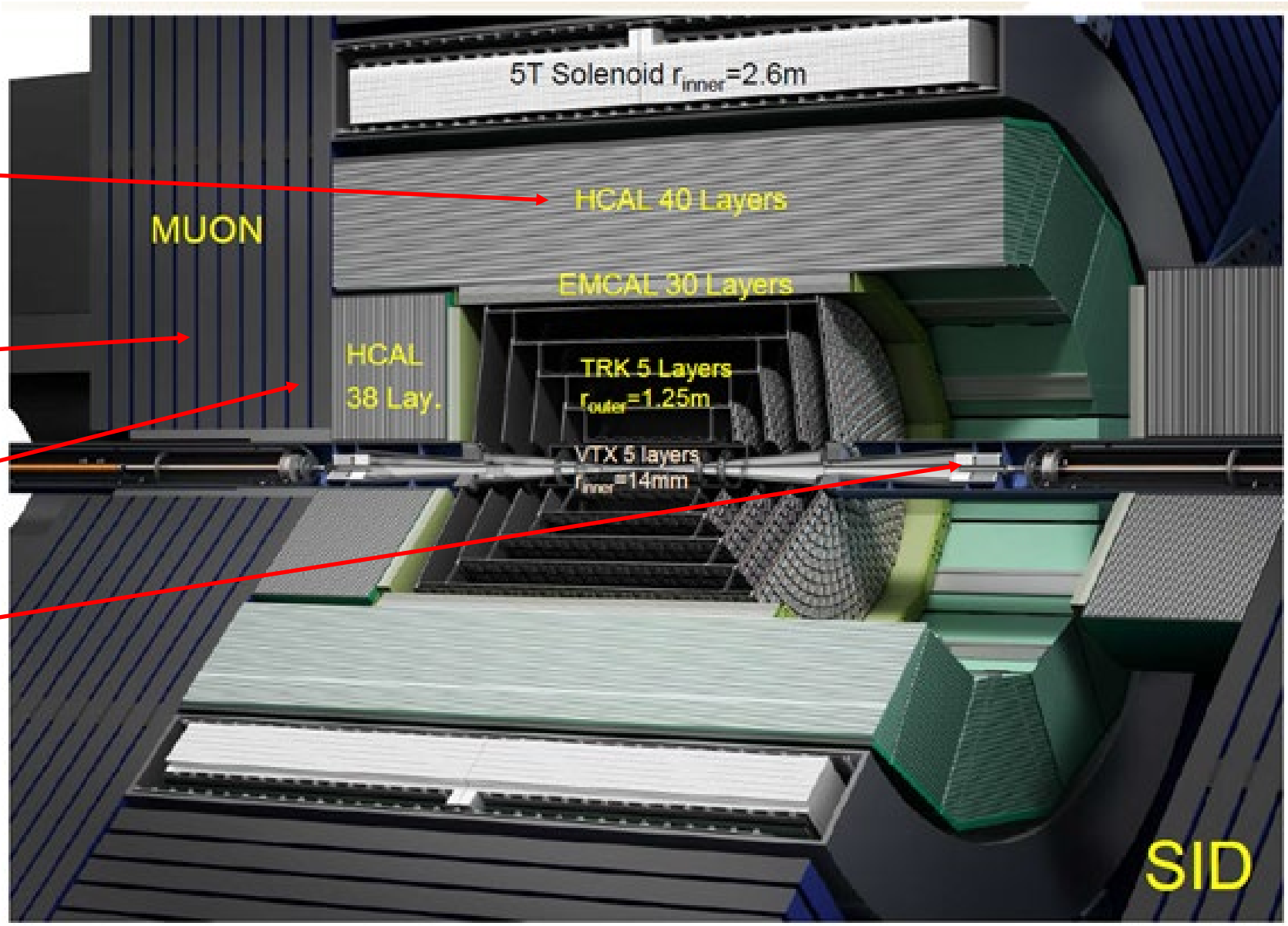
The SiD Detector is one of two detector designs for the future International Linear Collider (ILC) that were validated in 2012 SiD features a compact, cost-constrained design for precision Higgs and other measurements, and sensitivity to a wide range of possible new phenomena. A robust silicon vertex and tracking system, combined with a five Tesla central solenoidal field, provides excellent momentum resolution. The highly granular calorimeter system is optimized for Particle Flow application to achieve very good jet energy resolution over a wide range of energies. With a potential construction date of the ILC moving closer, it is now the time to review the design and technology decision that have been made during the DBD phase and reconsider them in the light of the recent technological advances. For each area of SiD development R&D topics and opportunities for participation will be discussed.

- Hadron Calorimeter
- Return yoke
- Muon detector
- Forward systems
- MDI



Potential Upgrade Items for Discussion

Tracking

- Radius and Aspect Ratio
- VTX – MAPS (layout, resolution, material budget, Tech vs. Ecm?)
- TRK – MAPS (Pixel size, timing, support/cooling/alignment)

Calorimetry

- Digital/MAPS Ecal (Layer structure, timing,…)
- Scint/Steel/SiPM (Megatiles, timing layers, endcap layout,…)
- Overall design optimization for AI/ML analyses

Muon system

- Number of layers, tail-catcher vs HCal/ML, endcap design

SC Coil

- CIC development

Potential Upgrade Items for Discussion

Forward Systems

- Status of FCAL Collaboration developments
- LumiCal - r/o electronics, inner radius measurement/stability
- BeamCal - sensor technology/radiation studies

MDI

- Revisit/update beam background studies