

ECAL-P frame: detector shielding

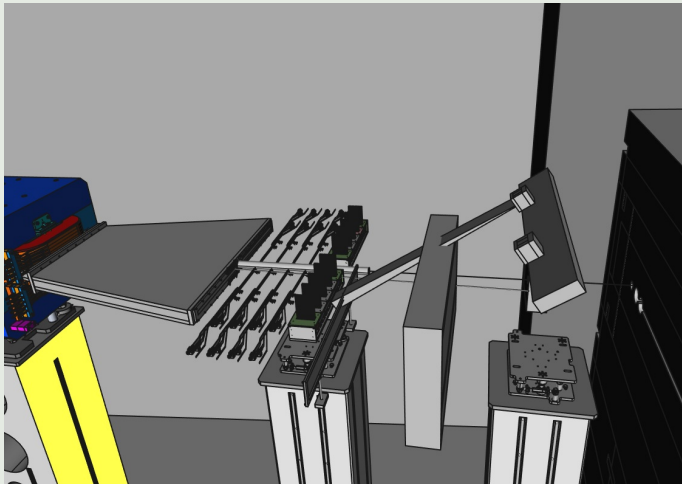
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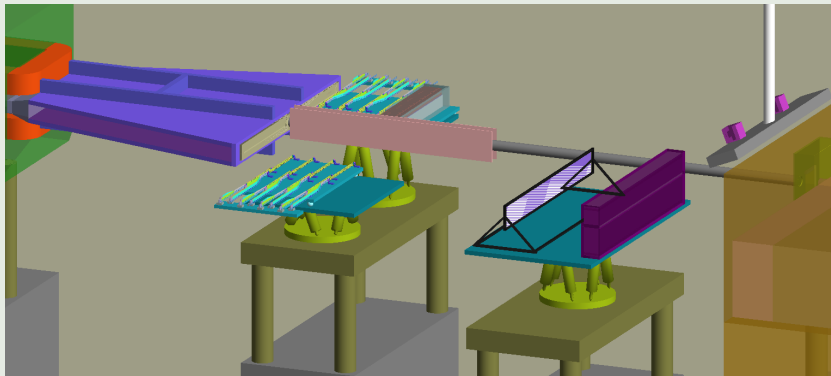


LUXE ECAL-P meeting 31-JAN-2023 (30-JAN sub-meeting in Kraków)

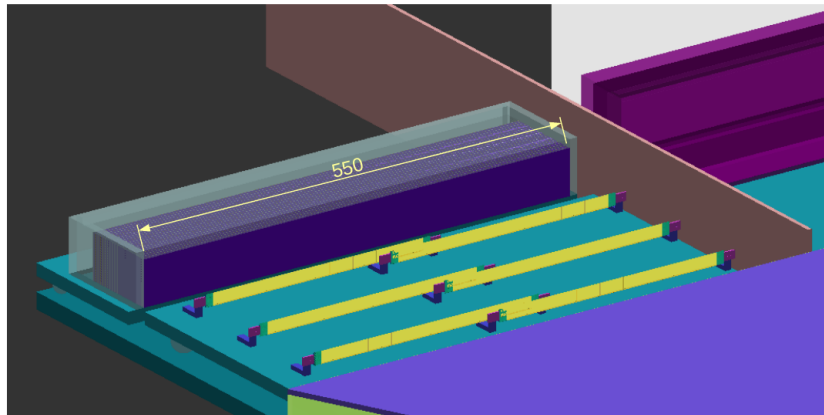
CAD view of interaction area (from LUXE BIG .STP file)



- shielding is planned between the beam pipe and ECAL-P

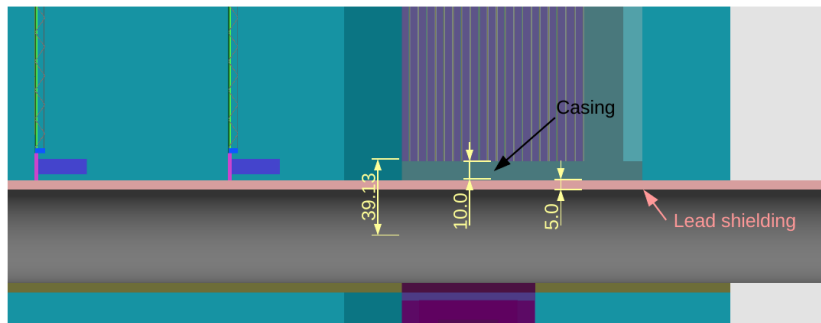


- two shielding planes visible plus text accomplishing the plot:
- “Additional 5 mm thick lead shielding implemented in the gap between beam pipe and detectors on positron side (tracker, ECal)”



- one lead shielding implemented in Geant 4 simulation...

Ecal top view

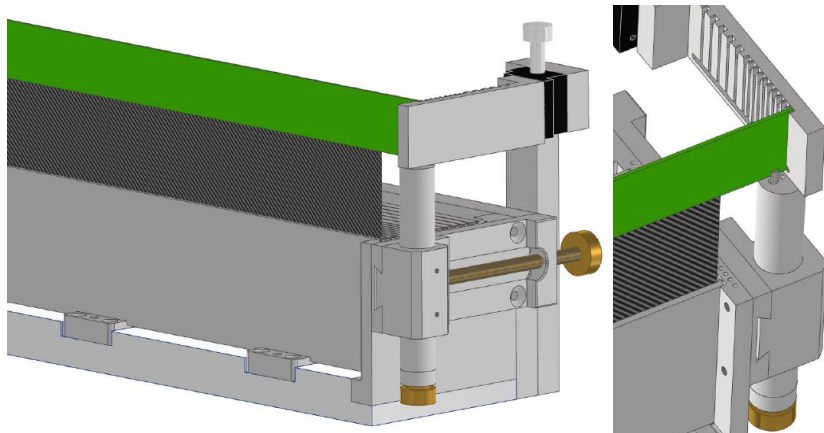


• ...with following dimensions

96 The ECAL-P is located 4.3 m from the interaction point (IP), 10 cm behind the tracker
97 and 4 cm away from the beam line on the side towards which the positrons are deflec-
98 ted. A 1 cm thick tungsten plate, extending along the beam-line from the exit of the
99 vacuum chamber, will shield it from the side. The ECAL-P will be installed on a spe-
100 cial optical table together with the tracker. From simulation and tests of the LumiCal
101

- 1 cm tungsten (!) plate is foreseen

Current version of ECAL-P mechanical frame (beam-pipe side)



- frame plus installation fixture (only during assembly)
- **combs for PCBs support may be not aligned with bottom combs**
- **potential conflict with the shielding plane (?)**

Questions

- How many shillings are planned ?
- what material (lead, tungsten ?)
- **dimensions (esp. thickness and height)**
- **is the shielding supposed to protect also the PCBs ?**
- position
- mounting of the shielding:
 - directly to the beam-pipe ?
 - to the ECAL-P (tracker ?) table ?
- **ECAL-E side:** are there some plans to use the space above the shielding ?
→ if yes: we should in advance **avoid the clash**