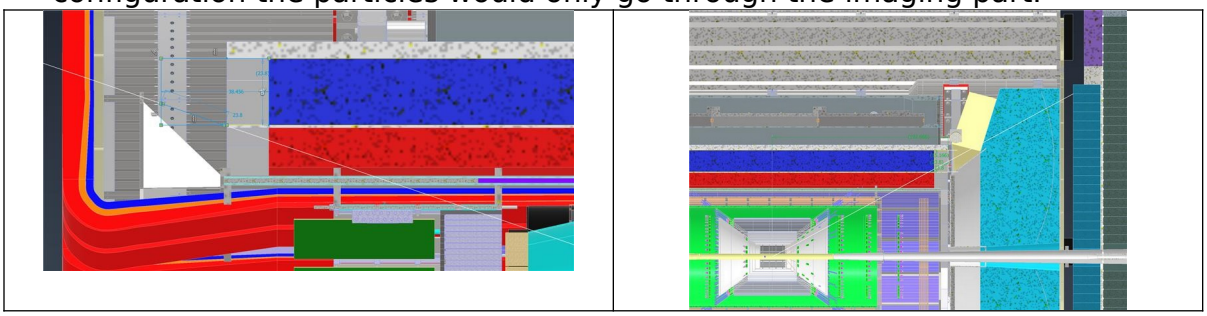
Questions to be answered on Barrel ECal

Dimensions:

- Inner radius 78.25 cm → fixed
- Total length: in model right now 435 cm this does not guarantee any good overlap with backward ecal and forward Ecal, see figures below. In such a configuration the particles would only go through the imaging part.



To have overlap in both direction with the EEECal and fECal by at least one block one needs to increase the length of the bECal

  - In electron going direction: 38 cm
  - In hadron going direction: 15 cm

  → total length 295 cm + 192 cm = 487 cm

→ this numbers need to be verified by simulations

Note: on both sides one would have an additional ~10 cm for the SiPM+readout

- What will the depth of the calorimeter be, can we reduce it to 18 radiation length

  → What is the combined response to neutrals (n, K_L) and muons from the outer HCal and bECal

  → impacts also the discussion above on the total length.

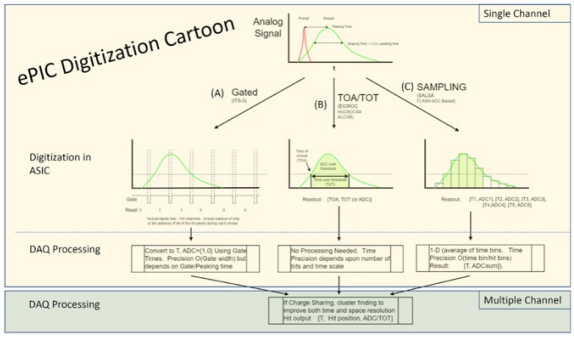
Readout SiPMs:

Is the segmentation in radius already fully optimized? → number of photon sensors and readout channels

How critical is cooling the SiPMs? Is accounting for the temperature dependents like for the STAR ECal & HCal enough?

Readout ASTROPIX:

- What is the power consumption → cooling requirements
- What are the plans for the ASTROPIX readout → integration into DAQ
- What is the integration time for the ASTROPIX → Is it behaving like the ALPIDE and ITS-3, see figure below



ASTROPIX Sensor:

- Do we need v4 of the sensor or can we use the existing v3
- What are the modification between v3 and v4 and what is the timeline to get v4
- What are the assumptions for EIC contributes to the sensor v4 development, i.e. ASIC designer time
- What is the power consumption → cooling requirements
- Are there any EIC specific modifications to the sensor needed
- What is the alternative to the ASTROPIX sensor

PbSciFi Part:

- What are the assumptions for the SciFi, double cladded, Bicron vs. Kuraray, attenuation length
    - Has the light attenuation been taken into account in the simulations
    - How do the SiPMs selected fit to the light spectrum of the SciFi
    - How do the fibers compare to the ones of the fECal, do we saturate the fiber production → LLP of fibers
- Due we need to do radiation tests for the glue

Cost, Schedule and Risk

- Need to iterate on the costing, right now some activities suggest we are in a preconceptual design → this is not consistent with state of the project, which has CD-1 since quite some time and is moving to CD-3A
- The design workforce requested is not consistent with what can be made available
- What are the BOE for all the costs
- What assumptions have been used to estimate the production time → it needs to be consistent with bECAL ready for installation 12/2029
- What is the Workforce?
- One needs a definition of the different work packages and association with the contributing institution → gap analysis of skills vs. tasks
- What is assumed on the number of production sides?

Integration

- Need to develop a preliminary installation concept
- How do we want to support the PbScifi part and the imaging part → self-supporting vs. a supporting rail structure
- What is the concept to build the shelf structure from the PbSciFi
- How do we want to integrate cooling for the ASTROPIX.