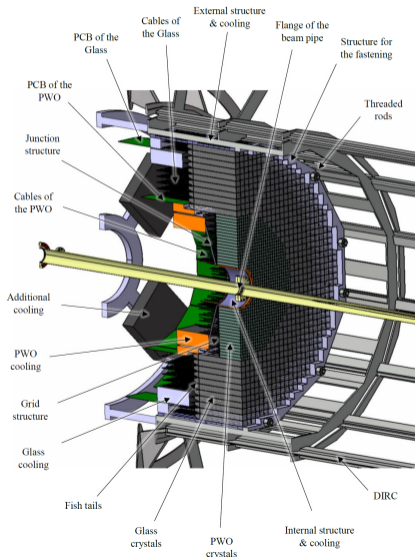


Calorimeter Working Group - Update

June 3, 2022

Friederike Bock (ORNL), Carlos Muñoz Camacho (IJCLAB), Paul Reimer (ANL), Oleg Tsai (UCLA)

Electron-Endcap Calorimeters



EMCal

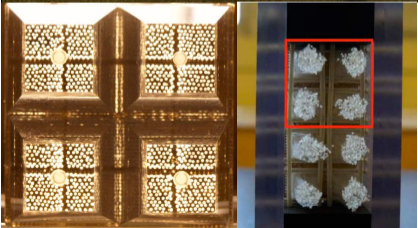
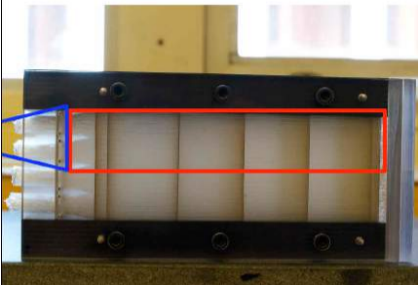
- Non-projective PbWO_4 - crystal calorimeter as proposed by EEEMC-Consortium
- Increased coverage in η through inlay around beam pipe - exact details to be worked out
- Detailed mechanical design in the works

HCal

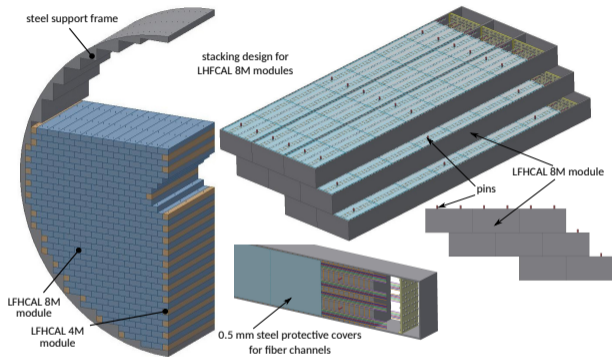
- Not immediately forseen
- Preparing stronger physics case and infra-structure for possible upgrade path

Hadron-Endcap Calorimeters -EMCal

- Two mature EMCal concepts proposed: ECCE - Pb-Scint-Shashlik vs. ATHENA WSciFi
 - Using below R_M tower sizes which can vary as function of R
 - Significantly easier construction for WSciFi calorimeter
 - Less space needed for WSciFi calorimeter & higher EM-shower containment
 - Cost comparable after adjustment for Uniplast unavailability & calorimeter dimensions
- ⇒ Consensus within WG to implement & construct ATHENA WSciFi and adapt plans for eRD106 accordingly
- ⇒ Exploring highly granular/pixelized inlay around beam pipe



Hadron-Endcap Calorimeters -HCal



- Both detector concepts using longitudinally separated Steel-Scintillator HCal
- ECCE LFHCAL with additional W-layers offers larger shower containment
- Cost increase due to Sci-plate main vendor unavailability under investigation
- Construction method allows to vary tower sizes as function of R to possibly reduce cost

⇒ Consensus within WG to implement & construct ECCE LFHCAL and change plans for eRD107 accordingly

⇒ Exploring highly granular/pixelized inlay around beam pipe

ECal

- Exploring viability of alternate options to ECCE-SciGlass calorimeter
- Main concerns for SciGlass calorimeter:
 - ▶ Possible R&D delays for SciGlass
 - ▶ Possible need for more space for tracker
 - ▶ Realism of performance studies with final geometry, shower containment
- Exploring possibility of additional review of different concepts regarding cost & risk

HCal

- Re-use of sPHENIX outer HCal
- Necessity and feasibility of inner HCal still to be determined, strongly depends on choice of ECal