Calorimeter Working Group - Update

June 9, 2022

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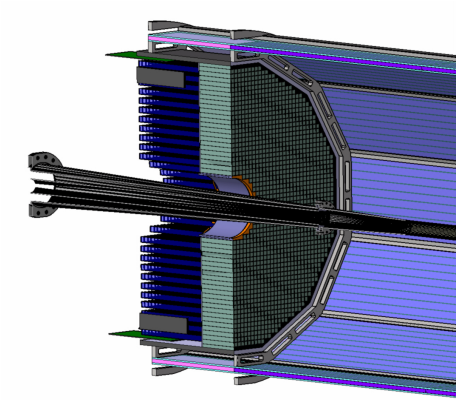
Electron-Endcap Calorimeters



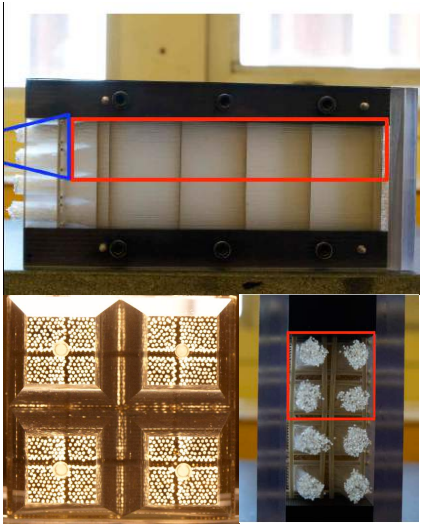
EMCal

- 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

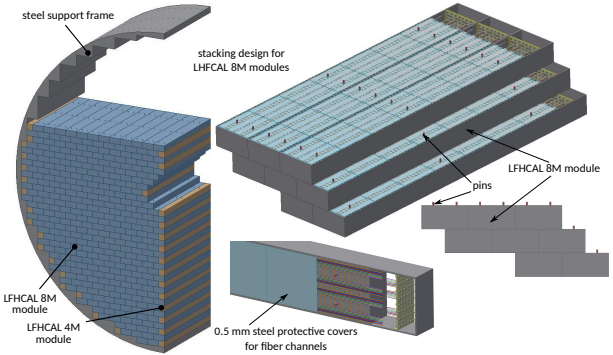


- Two mature EMCal concepts proposed:
  ECCE Pb-Scint-Shashlik vs. ATHENA WSciFi
- Using below R_M tower sizes which can vary as function of R
- Significantly easier construction for WSciFi calorimeter
- Less space needed for WSciFi calorimeter & higher EM-shower containment
- Cost comparable after adjustment for Uniplast unvailabilty & calorimeter dimensions

$\Rightarrow$ Consensus within WG to recommend ATHENA WSciFi for implementation & construction and to adapt plans for eRD106 accordingly

$\Rightarrow$ Exploring higher granularily & density inlay around beam pipe mathing beam pipe cut out shape

Hadron-Endcap Calorimeters -HCal



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

$\Rightarrow$ Consensus within WG to recommend ECCE LFHCal for implementation & construction and change plans for eRD107 accordingly

$\Rightarrow$ Exploring highly granular/pixelized inlay around beam pipe similar to W-CALICE design

Barrel Calorimeters

ECal

- Very complementary concepts ECCE SciGlass calorimeter & ATHENA imaging calorimeter
- Main concerns for SciGlass calorimeter
  - Possible R&D delays for SciGlass
  - Possible need for more space for tracker
  - Realismn of performance studies with final geometry, shower containment
- Main concerns for imaging calorimeter
  - Shower separation in PbSciFi along same ϕ & matching with Si-layers
  - Cooling & data flow management in silicon layers
  - Realismn of performance studies with final geometry & reconstruction limitations
- Exploring possibility of additional review of different concepts regarding cost, risk & performance after conclusion of additional studies

HCal

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