ECCE Calorimeter Options

Detector Meeting

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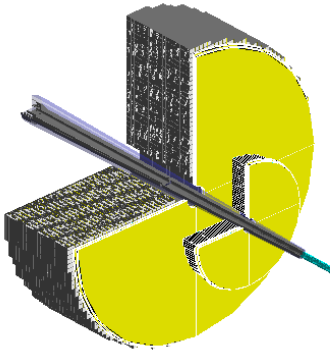
Friederike Bock & Yongsun Kim
ORNL & Sejong University

Backward calorimetry options



Options for E-Cal:

a) Hybrid $PbWO_4$ and Sci-Glass calo

b_1) $PbWO_4$ - crystal calo (if small enough)

b_2) Hybrid $PbWO_4$ and Pb-Glass calo (if too large)

Interested Groups:
AANL, Charles U. Prague, CUA, FIU, IJCLab-Orsay, JMU, Lehigh U., MIT, UKY

Options for H-Cal:

a) Re-use STAR-forward HCal

b) none

Interested Groups:
ORNL, Wayne State

detector	z [m]	depth [cm]	radial coverage [cm]	pseudorapidity	tower size [cm]
ECAL					
hybrid:					
$PbW0_4$	z = -1.9	18 (60)	$14.95 < r < 51$	$-3.2 < \eta < -2$	2x2
Sci-Glas	z = -1.9	40 (60)	$51 < r < 66$	$-2 < \eta < -1.74$	4x4
HCAL					
STAR reuse	z = -3.6	100	$15 < r < 260$	$-3.87 < \eta < 0.97$	10x10

Barrel calorimetry options

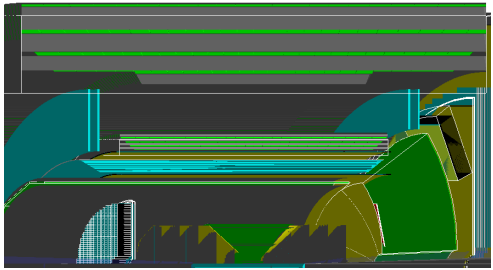
Options for E-Cal:

a) Sci-Glass calo

b_1) SPACAL EMC diff sampl. frac

b_2) Re-use sPHENIX EMC (upgraded electronics)

Interested Groups:
MIT, CUA, OSU



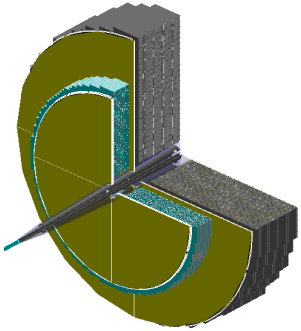
Options for H-Cal:

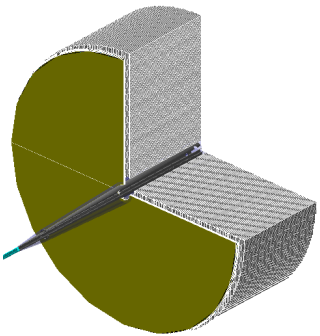
a) Re-use sPHENIX HCal

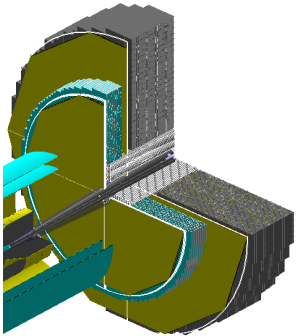
Interested Groups:
Lehigh U., Rutgers U., ISU

detector	r [cm]	depth [cm]	z coverage [cm]	pseudorapidity	tower size [cm]
ECAL					
Sci-Glas	r = 82	50(60)	$-251 < z < 169$	$-1.8 < \eta < -1.4$	4x4
SPACAL (w/o iHCal)	r = 92	40(50)	$-251 < z < 169$	$-1.69 < \eta < -1.28$	4x4
sPHENIX (w/ iHCal) reuse	r = 92	20(50)	$-251 < z < 169$	$-1.69 < \eta < -1.28$	4x4
HCAL					
sPHENIX reuse	r = (180, 194)	87(73)	$-320 < z < 320$	$-1.16 < \eta < 1.16$	10x10?

Forward calorimetry options







Options for E-Cal:

a) hybrid Dual read-out/Re-use PHENIX Shalik-ECal

b_1) Re-use PHENIX Shalik-ECal (new readout)

b_2) Re-use ALICE Shalik-ECal (new readout)

Interested Groups:

ORNL, Sejong U., KNU, Yonsei U., PNU

Options for H-Cal:

a) hybrid Dual read-out/ new HCal long. sep

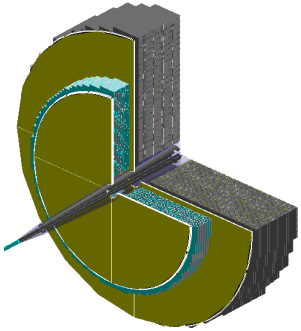
b_1) new HCal long. sep

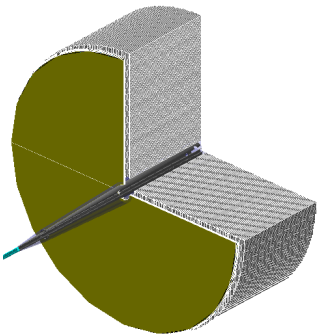
b_2) Dual read-out

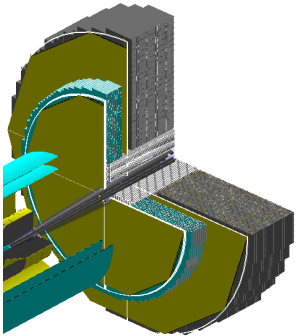
Interested Groups:

ORNL, WSU, Sejong U., KNU, Yonsei U., PNU

Forward calorimetry options







detector	z [m]	depth [cm]	radial coverage [cm]	pseudorapidity	tower size [cm]
ECAL:					
PHENIX/ALICE reuse	$z = 2.9$	37.5	$20 < r < 183$	$1.24 < \eta < 3.50$	5x5 (6x6)
HCAL:					
LHCAL	$z < 3.5$	100	$20 < r < 262$	$1.11 < \eta < 3.47$	5x5
DRCALO :					
(full)	$3.0 < z < 4.5$	150	$20 < r < 220$	$1.11 < \eta < 3.47$	0.3x0.3
(inlay)	$3.0 < z < 4.5$	150	$20 < r < 50$	$2.70 < \eta < 3.70$	0.3x0.3

Suggested simulation setups

setup	A	B	C
detectors			
backwards:	Hybrid ECal Fe/Sci (STAR reuse) - HCal	$PbWO_4$ Ecal Fe/Sci (STAR reuse) - HCal	Hybrid ECal Fe/Sci (STAR reuse) - HCal
barrel:	Sci-Glas ECal outer sPHENIX reuse - HCal	sPHENIX reuse ECal/iHCal outer sPHENIX reuse - HCal	Sci-Glas ECal outer sPHENIX reuse - HCal
forward:	PHENIX reuse ECal long sep. HCAL	PHENIX reuse ECal long sep. HCAL inlay Dual Read-out E&HCal	Dual Read-out E&HCal
MC-samples	general	DIS, MB, Q-biased	MB, Q-biased

- MC-setup A is for general use, B & C more specialized only for jet studies and DIS
- all configurations should include 1-2 TOF layers in all regions (ideally infront of ECal) and possibly in front of HCal
- reuse options fully implemented (sPHENIX/STAR), Dual read-out implemented
- longitudinally sep. HCal should be ready & ported by Monday
- hybrid ECal and Sci-Glass ECal ready latest by Tuesday in simple implementation

Join us!

Participate in these important decisions!

- **Contact us:**
  Yongsun Kim - kimy@cern.ch
  Friederike Bock - friederike.bock@cern.ch
- **Mattermost channel:**
  Fun4All-Calorimeters