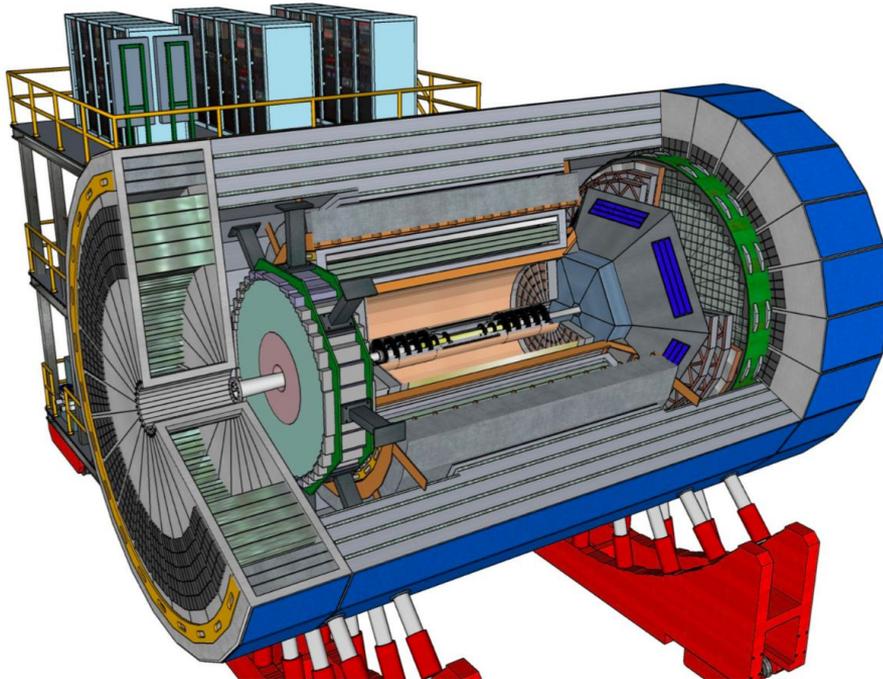


Detector Team Progress



- First, a huge thank you for all your work over the past couple months!
 - 35 Events Scheduled on Indico
 - MANY smaller meetings and discussion
- The evaluation of leading technology alternatives has been very informative.
- Today, as a group, will review these technologies as we work to define the ECCE configuration for the first physics simulation campaign.
- Options under consideration are a refinement of the initial ECCE concept (with its recognized leading detector options) shown on next slides.
- Leading detector options have been reviewed with Jin and Cameron and we are on track for full simulations, though complicated detector geometries may be simplified initially (e.g. dRICH). (Can comment on Fun4All readiness of subsystems today.)

ECCE General Detector Concept



ECCE ELECTRON ENDCAP STRAWMAN

Tracking: MAPS, Micro Pattern Gaseous Detectors (MPGD)

Electron Detection: PWO&SciGlass

- Inner part: PWO crystals (reuse some)
- Outer part: SciGlass (backup PbGl)

h-PID: mRICH

- From yellow report

HCAL: Steel from magnet or Pb/Sc or Fe/Sc

- Not instrumented and only serve as flux return?
- Instrumented \w reduced thickness (lower energies)

ECCE CENTRAL BARREL STRAWMAN

Tracking: Silicon barrel tracker (optional Si/GEM hybrid)

Electron PID: SciGlass (backup: W/Sc (Pb/Sc) shashlik)

- SciGlass remains to be demonstrated
- Several backup options – lower resolution though

h-PID: hpDIRC & AC-LGAD

- Compact
- AC-LGAD never been shown for barrel configuration
- AC-LGAD backup: dE/dx (needs more space)

HCAL: magnet steel (**reuse**) - Fe/Sc

ECCE HADRON ENDCAP STRAWMAN

Tracking: MAPS, Micro Pattern Gaseous Detectors (MPGD)

h-PID: dRICH&TOF

e/h separation: TOF & aerogel

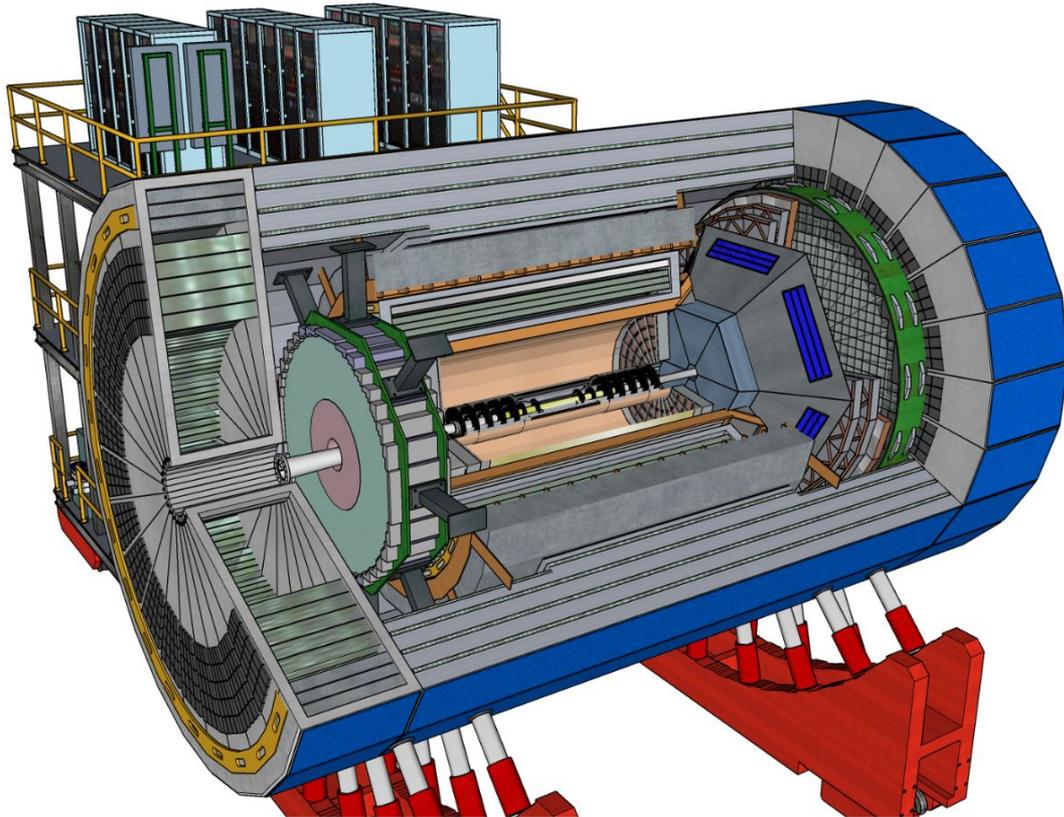
- TRD to separate electrons from high momentum hadrons?

Electron PID: W/ScFi, Pb/Sc or W/Sc shashlik

HCAL: Pb/Sc or Fe/Sc

- Alternative for improved resolution: dual readout, high-granularity

ECCE Detector



Red = preferred technology
Blue = preferred technology
 \w some open questions
Black = still being discussed

ELECTRON ENDCAP

Tracking: GEM / MPGD

Electron Detection:

- Inner part: PWO crystals (reuse some)
- Outer part: SciGlass (backup PbGl)

h-PID: mRICH

HCAL: Steel from magnet or Fe/Sc

- Not instrumented and only serve as flux return?
- Instrumented \w reduced thickness (lower energies)

CENTRAL BARREL

Tracking: Silicon barrel + forward tracker (optional Si/GEM hybrid)

Electron PID: SciGlass (backup: PbGl or W(Pb)/Sc shashlik)

h-PID: hpDIRC & AC-LGAD [progress: DIRC orientation ☺]

HCAL: magnet steel (reuse) - Fe/Sc

HADRON ENDCAP

Tracking: GEM / MPGD

PID: dual-RICH & AC-LGAD

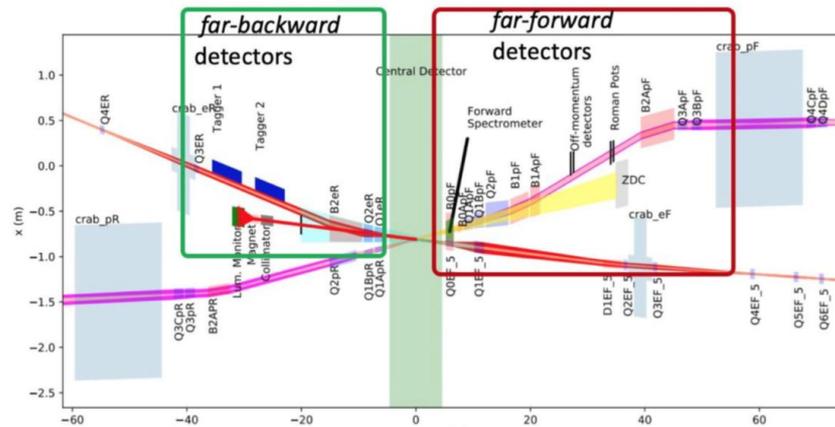
Calorimetry: standard W/ScFi + Fe/Sc

Upgrade: Dual Readout EM+Had Cal?

Example discussions:

- Backup for AC-LGAD in barrel
- SciGlass ongoing R&D timeline
- Hadron Endcap calorimetry

ECCE General Detector Concept



Detector Technologies (from YR)

FAR BACKWARD DETECTORS

- low-Q2 tagger
- Lumi-detector
- Lepton polarimetry
- hadron polarimetry

FAR FORWARD DETECTORS

- ZDC – Si/W & PWO (SciGlass)
- Roman Pots – Silicon sensors, AC-LGADs
- Off-momentum det. – Silicon sensors
- B0-trackers – MAPS & timing layers
- Lepton polarimetry
- hadron polarimetry

ECCE ELECTRON ENDCAP STRAWMAN

Tracking: MAPS, Micro Pattern Gaseous Detectors (MPGD)

Electron Detection: PWO&SciGlass

- Inner part: PWO crystals (reuse some)
- Outer part: SciGlass (backup PbGI)

h-PID: mRICH

- From yellow report

HCAL: Steel from magnet or Pb/Sc or Fe/Sc

- Not instrumented and only serve as flux return?
- Instrumented \w reduced thickness (lower energies)

ECCE CENTRAL BARREL STRAWMAN

Tracking: Silicon barrel tracker (optional Si/GEM hybrid)

Electron PID: SciGlass (backup: W/Sc (Pb/Sc) shashlik)

- SciGlass remains to be demonstrated
- Several backup options – lower resolution though

h-PID: hpDIRC & AC-LGAD

- Compact
- AC-LGAD never been shown for barrel configuration
- AC-LGAD backup: dE/dx (needs more space)

HCAL: magnet steel (reuse) - Fe/Sc

ECCE HADRON ENDCAP STRAWMAN

Tracking: MAPS, Micro Pattern Gaseous Detectors (MPGD)

h-PID: dRICH&TOF

e/h separation: TOF & aerogel

- TRD to separate electrons from high momentum hadrons?

Electron PID: W/ScFi, Pb/Sc or W/Sc shashlik

HCAL: Pb/Sc or Fe/Sc

- Alternative for improved resolution: dual readout, high-granularity