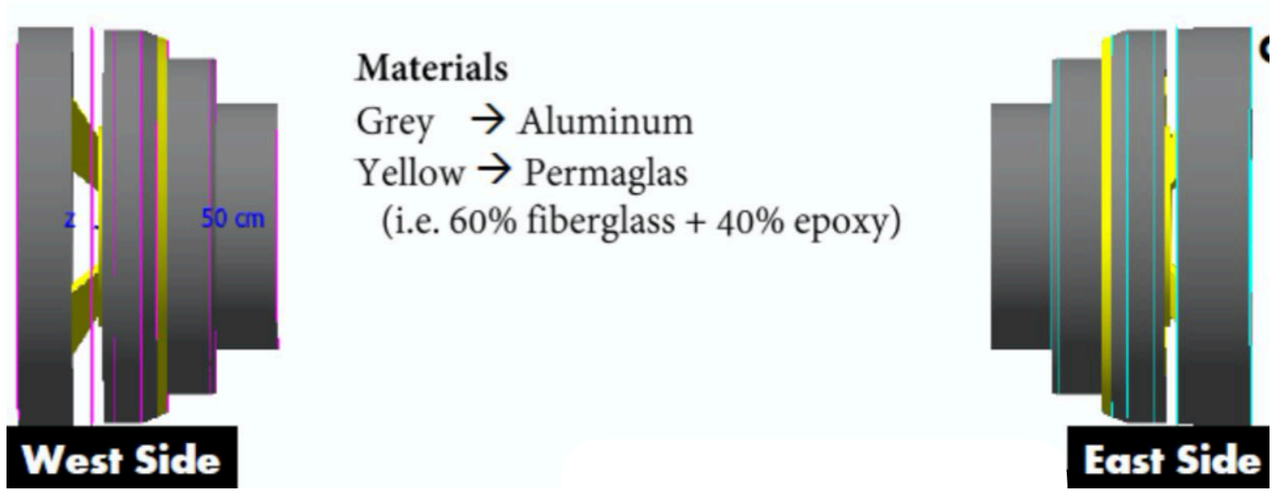
Radiation length summary

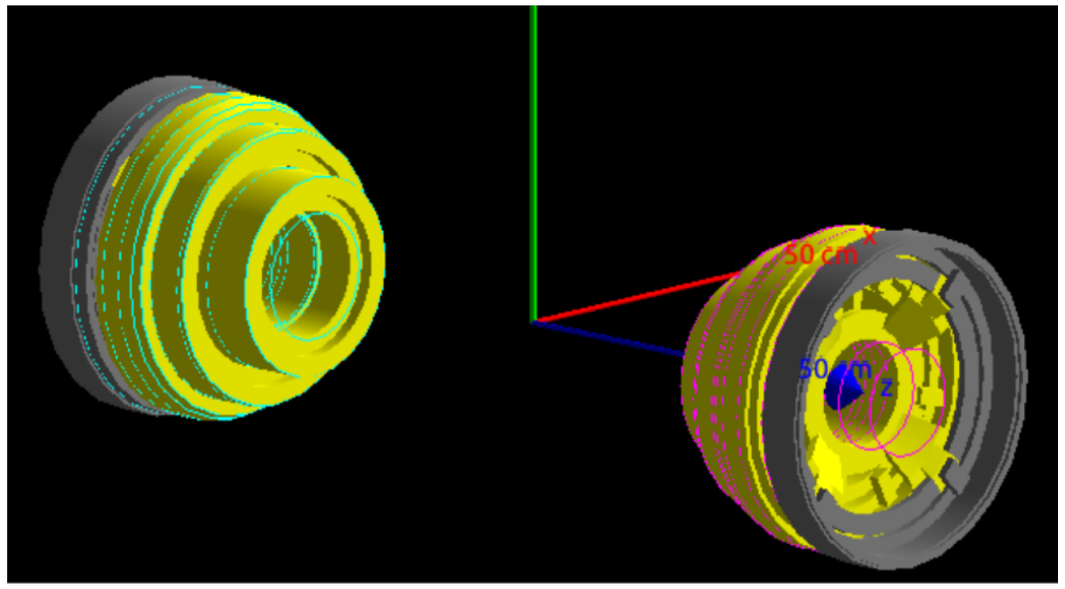
Rongsheng Shi, Lia Lavezzi, Isabella Garzia

Changes on passive elements

Old configuration (before Dec. 17, 2019):
All aluminum

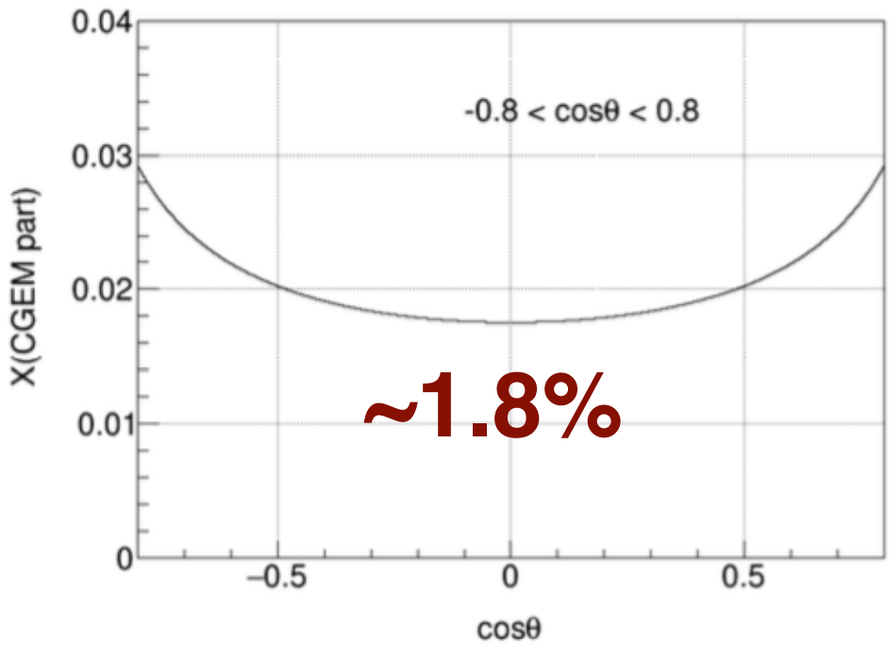


Final configuration (after Dec. 17, 2019):
Grey: aluminum
Colored: permaglas



Final configuration (after Dec. 17, 2020)

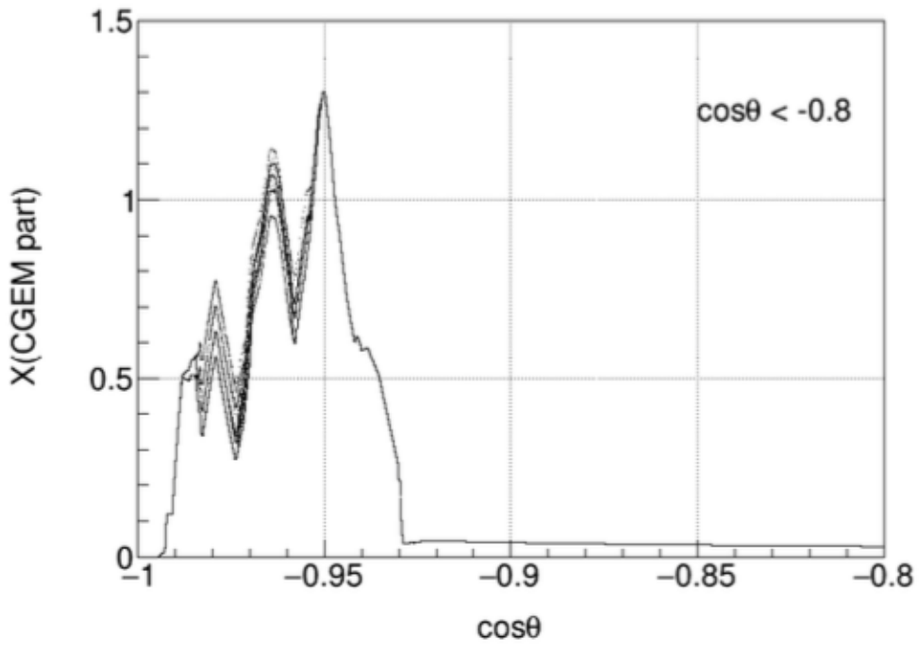
Barrel Region

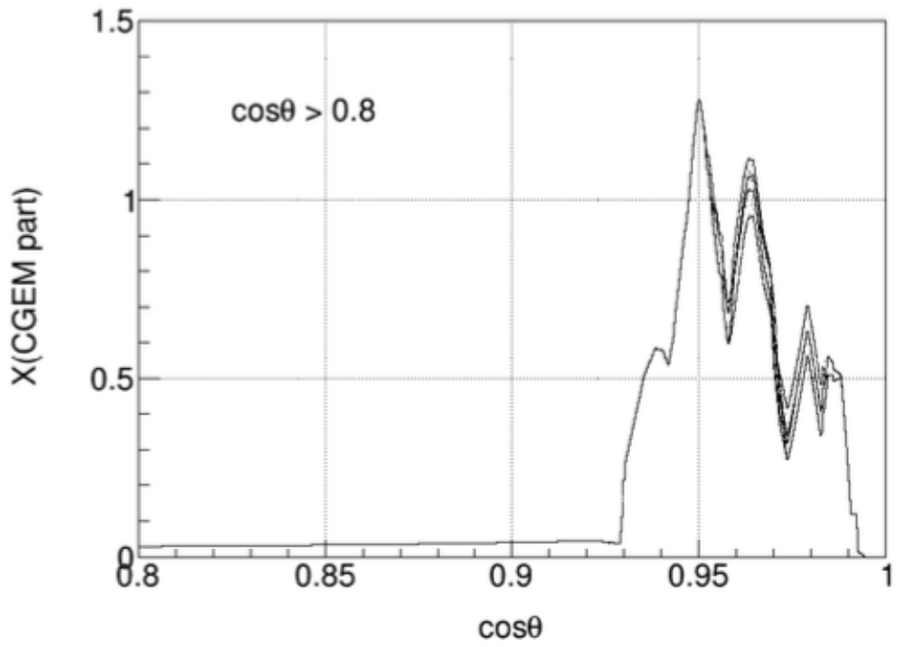


CGEM BOSS 6.6.5.f
BesSim-00-04-16
CgemSim-01-00-29

CGEM

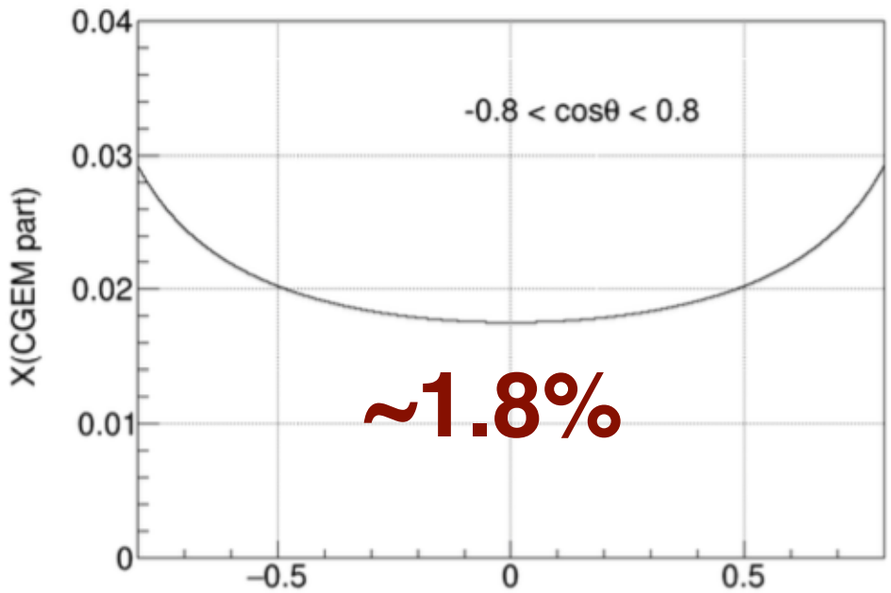
Endcap Region





Whats change

Barrel Region

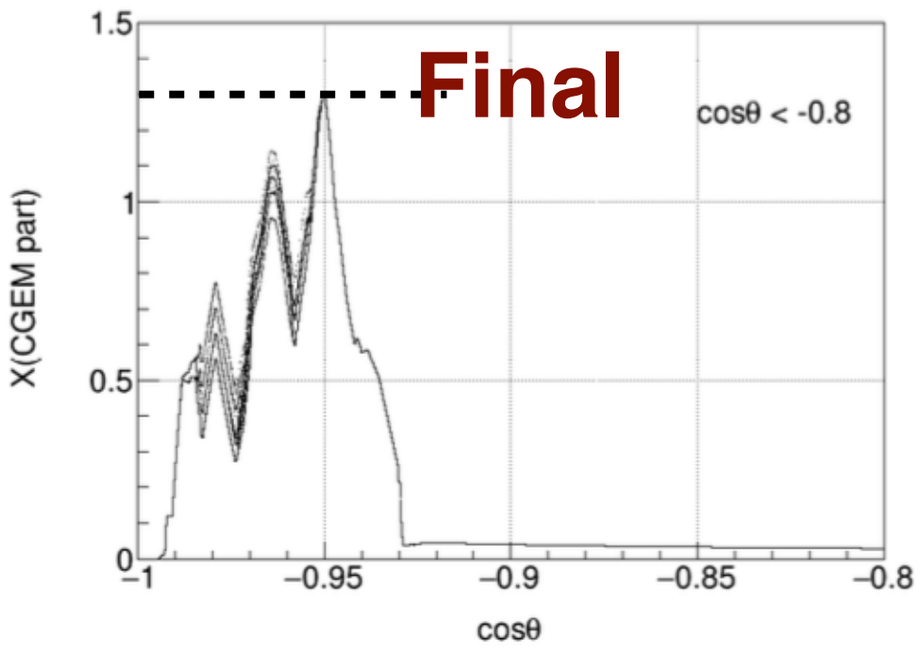


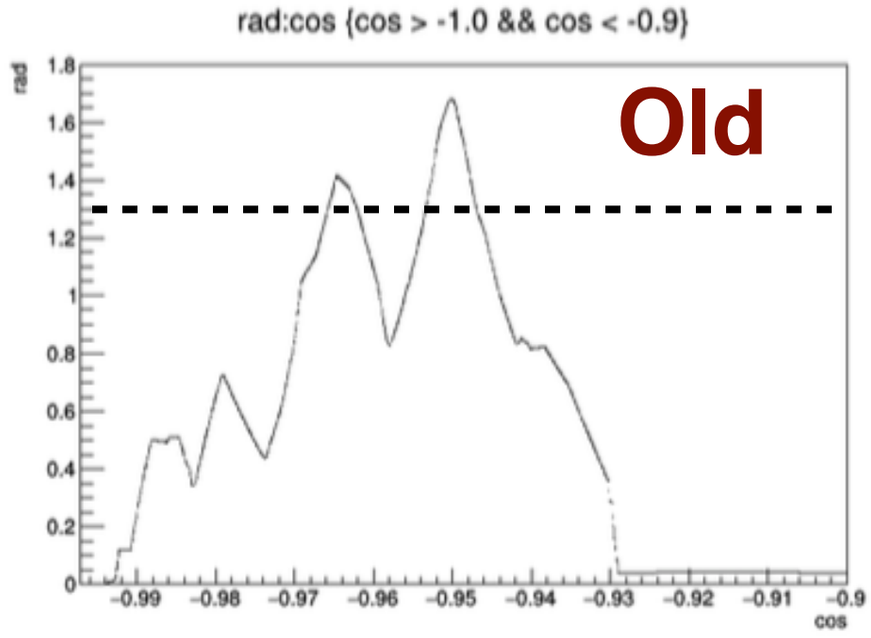
~1.8%

CGEM BOSS 6.6.5.f
BesSim-00-04-16
CgemSim-01-00-29

CGEM

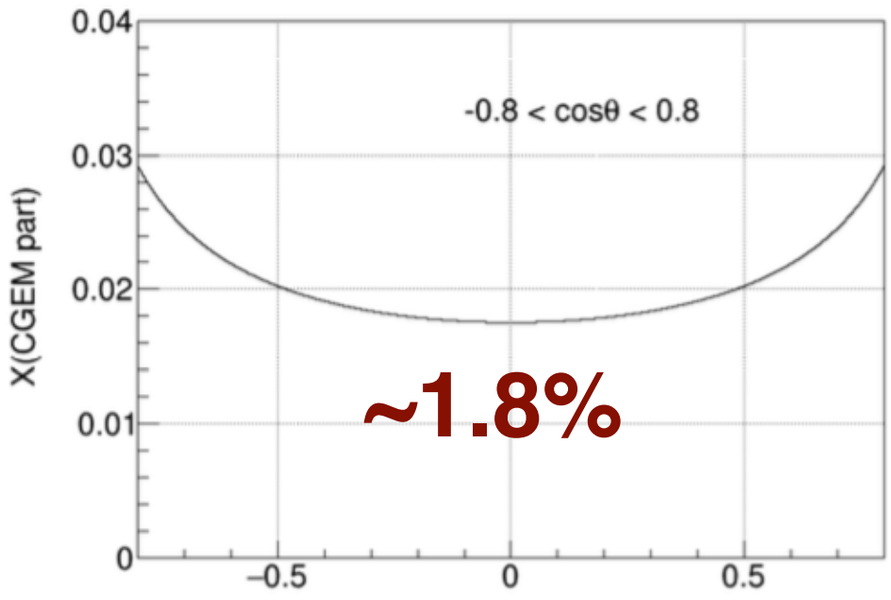
Endcap Region





Whats change

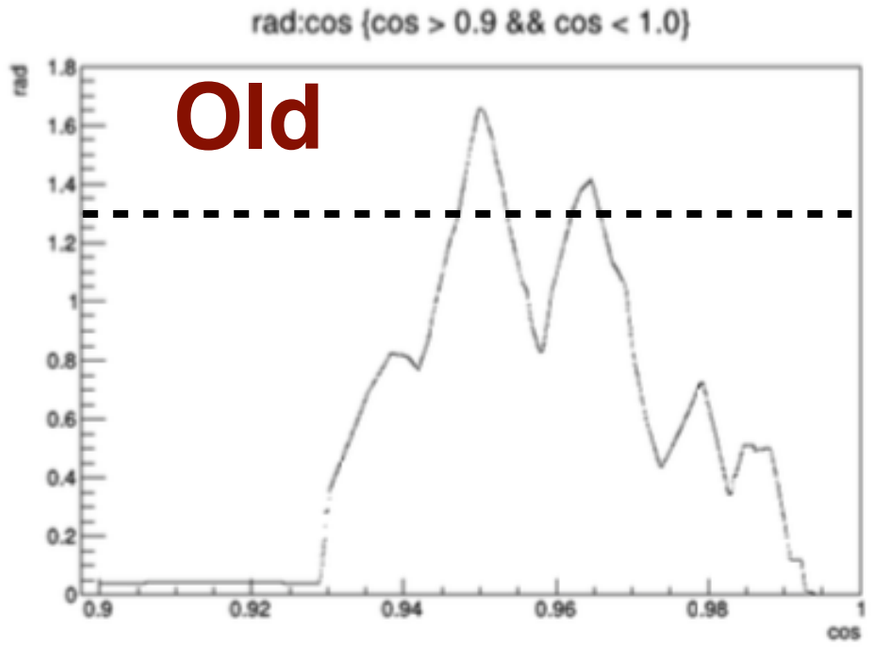
Barrel Region

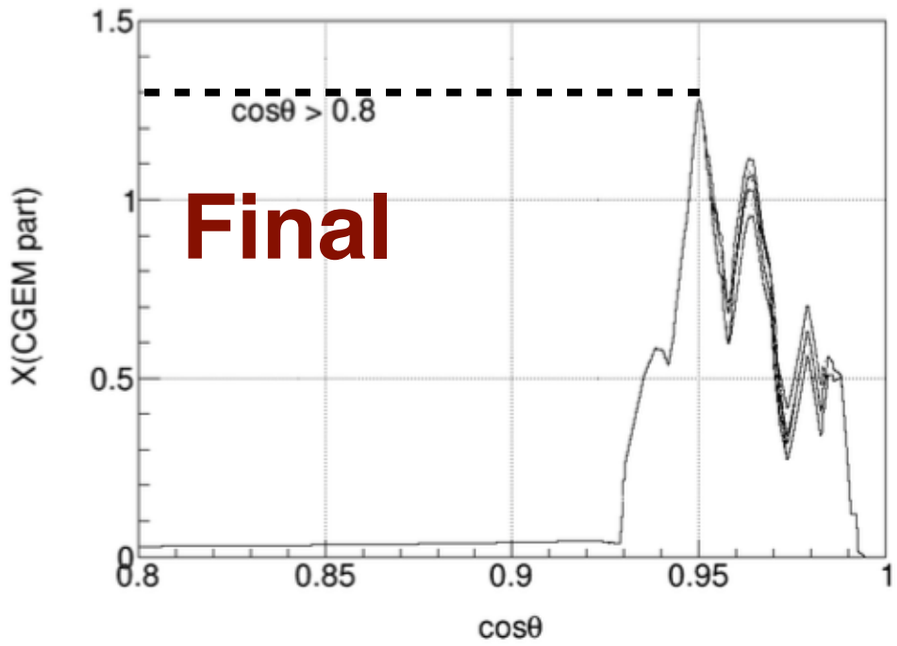


CGEM BOSS 6.6.5.f
BesSim-00-04-16
CgemSim-01-00-29

CGEM

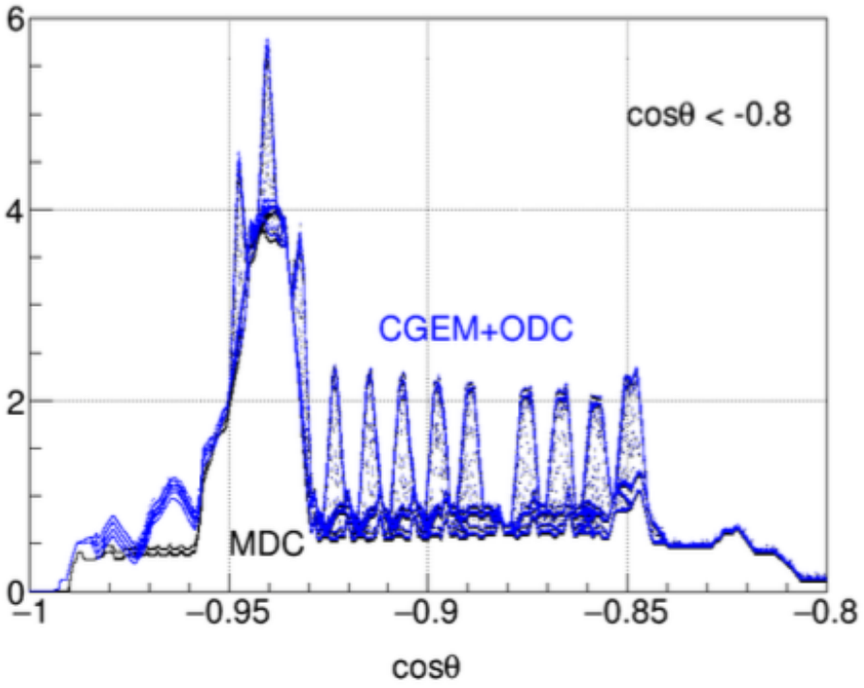
Endcap Region



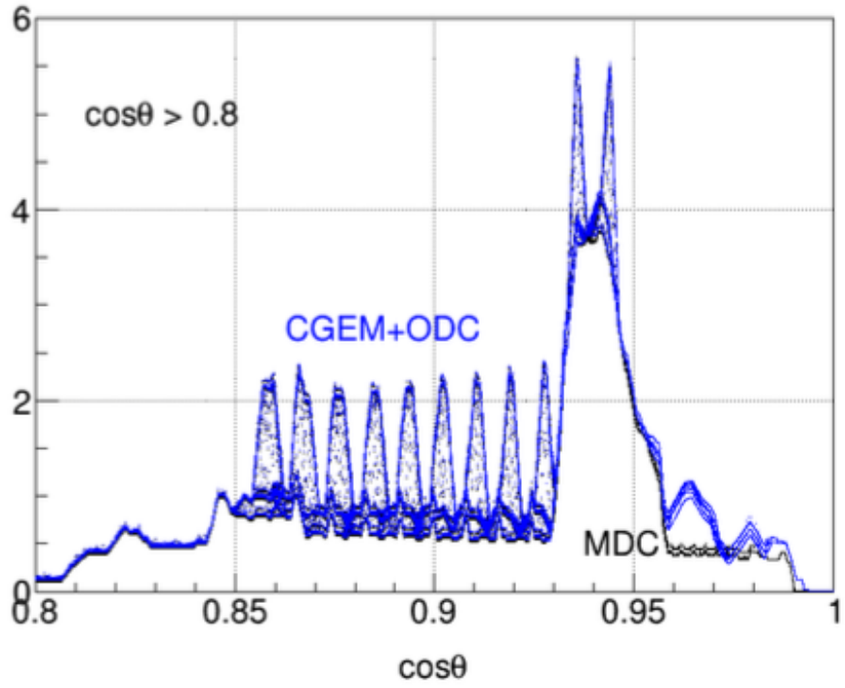


Comparison between CgemBoss and Boss

Endcap Region



×



Fill Factors

Computation from Lia Lavezzi

GEM foils:

Fill factor = (Vfoil – Vhole)/Vfoil

Fill factor copper	0.719486
density copper	8.96 g/cm3
effective density copper	6.44708 g/cm3

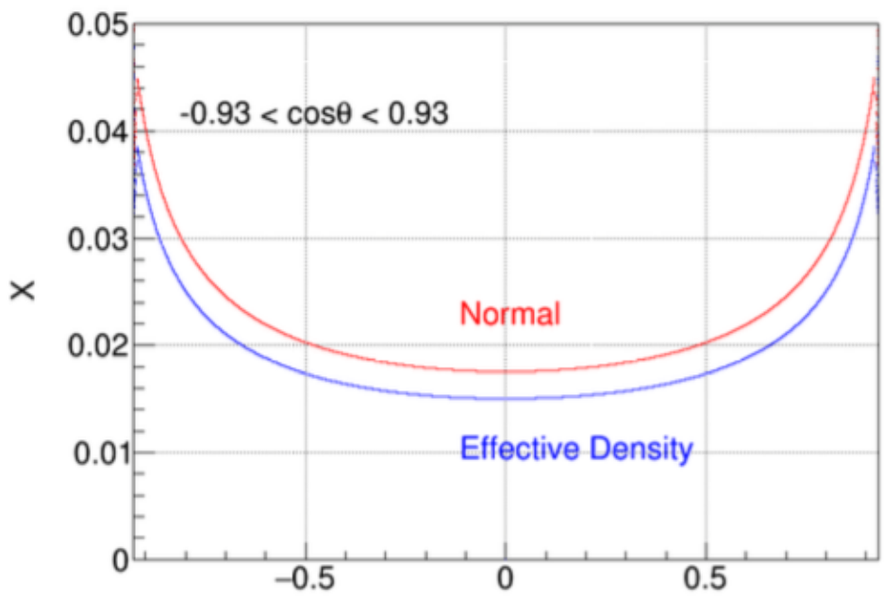
Fill factor kapton	0.808171
density kapton	1.42 g/cm3
effective density kapton	1.14794 g/cm3

Anode strips:

Computed effective densities [g/cm3]
strip x fill factor 0.88
density copper 8.96 --> effective density copper 7.88
strip v fill factor 0.2
density copper 8.96 --> effective density copper 1.77
density kapton 1.42 --> effective density kapton 0.28

Fill Factors: impact on X_0

Barrel Region

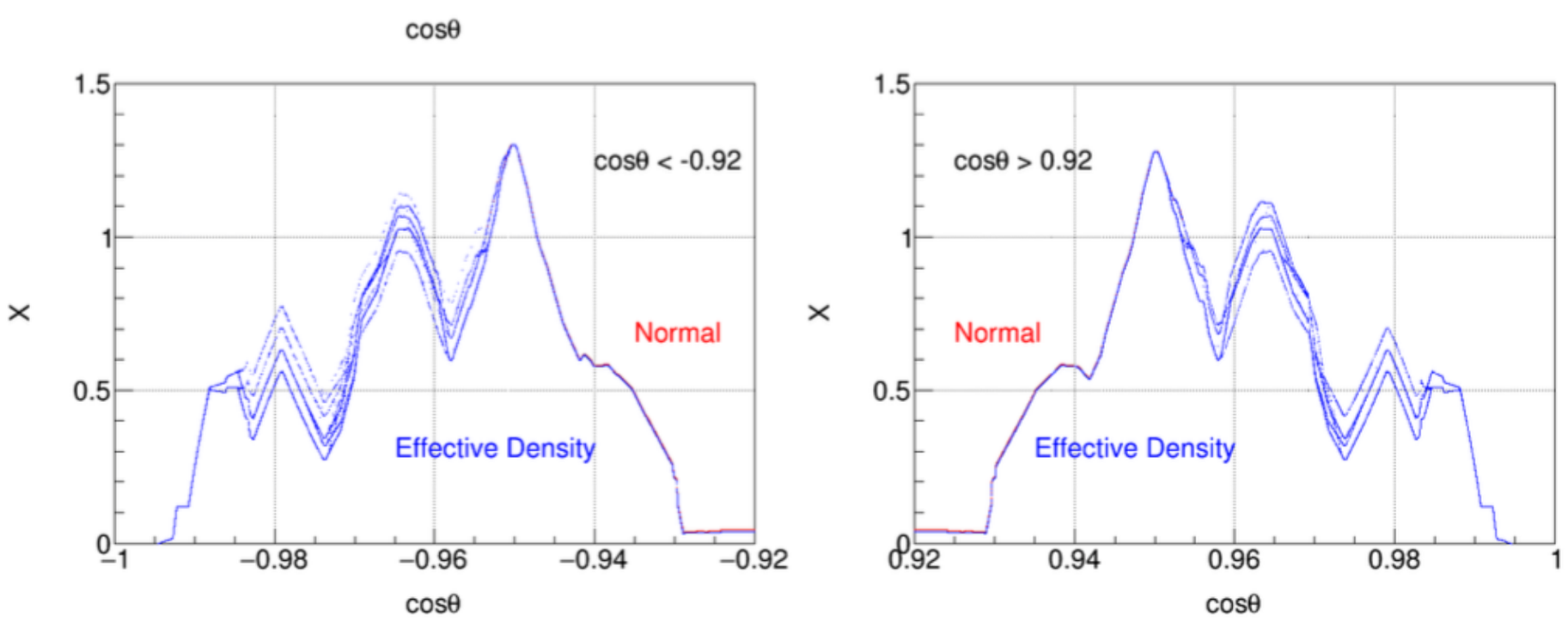


~1.5%

CGEM BOSS 6.6.5.f
BesSim-00-04-16
CgemSim-01-00-29

Total

Endcap Region



To do list

- Final geometry implementation (ongoing) and checks
  (Yingrui presentation)

- Geometry documentation: number of strips are the same as before; different materials and stratifications

- Multiple-scattering studies taking into account holes/strips/effective density