

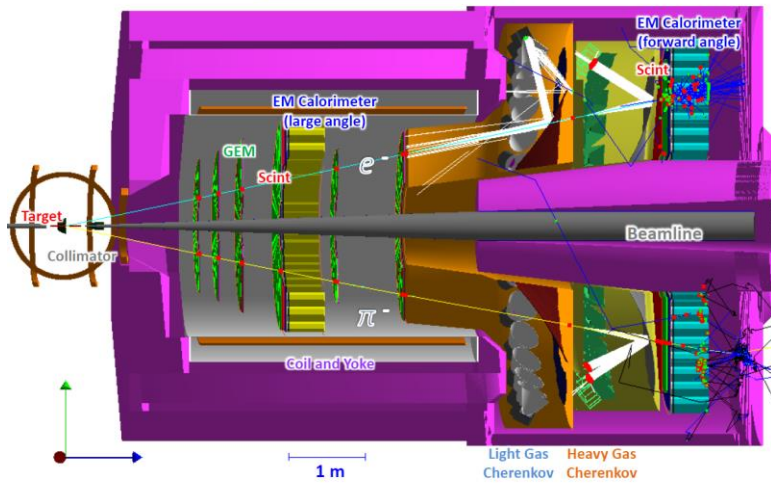
SoLID Simulation update

Zhiwen Zhao

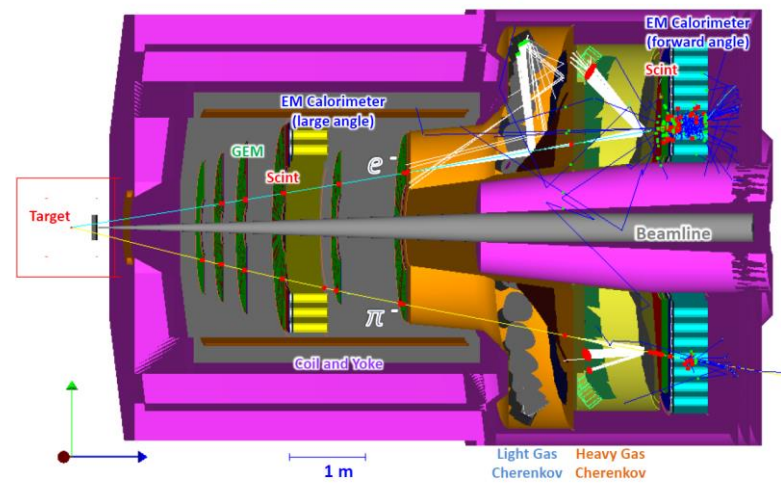
2022/05

Current longer endcap setup

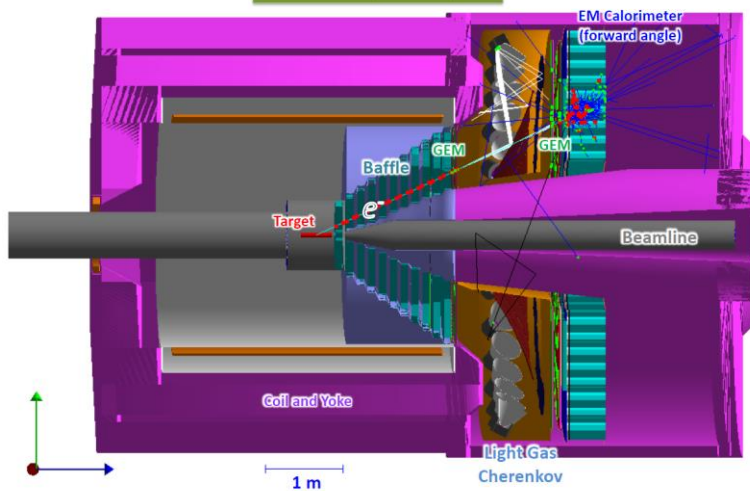
SoLID (SIDIS He3)



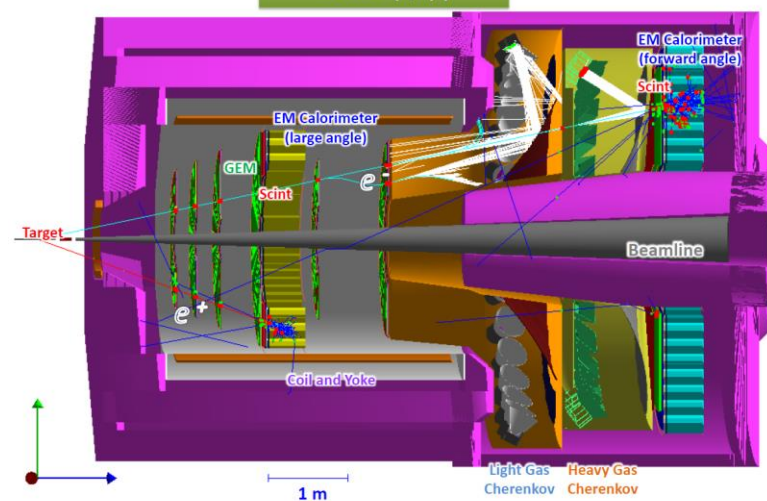
SoLID (SIDIS NH3)



SoLID (PVDIS)

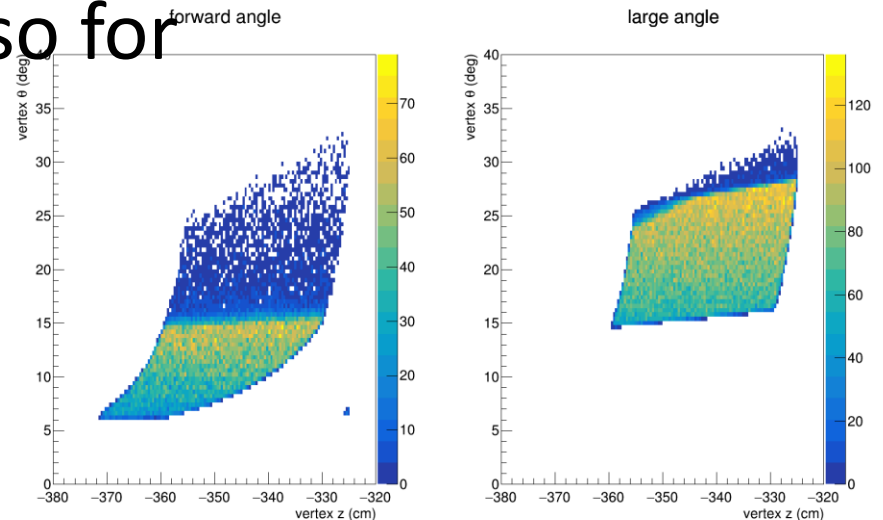
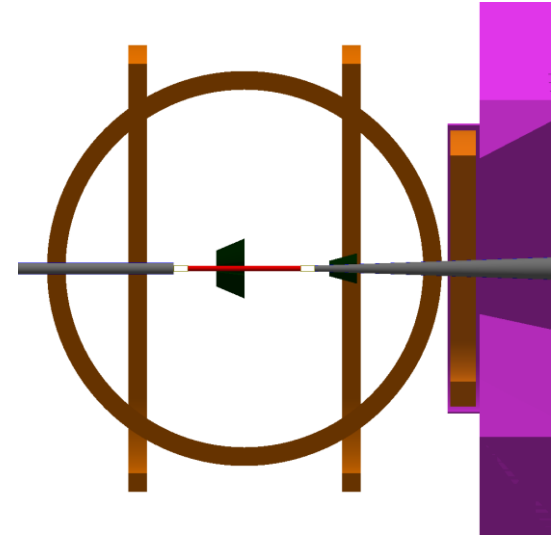


SoLID (J/ψ)



Sim study

- SIDIS He3 target window collimators further optimized
- Mainly waiting for LGC update to do overall study like acceptance and trigger
- Need check GEM size also for 7-8deg



Magnet geometry, CAD and map versioning

https://github.com/JeffersonLab/solid_gemc/blob/master/field/readme

map

field map dir besides this dir
web <https://solid.jlab.org/files/field/>
jlab ifarm /group/solid/www/solid/html/files/field

https://solid.jlab.org/files/field/solenoid_v4.dat
like v3, but reduce endcap steel to 6" thick, by Jay Benesch in 2022
refer to
<https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-255062/22-014.pdf>
<https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-255062/22-011.pdf>

https://github.com/JeffersonLab/solid_gemc/blob/master/geometry/magnet_moved/solid_solenoid_v4_geometry.pl

geometry

https://solid.jlab.org/wiki/index.php/Engineering_Integration_and_CAD

cad

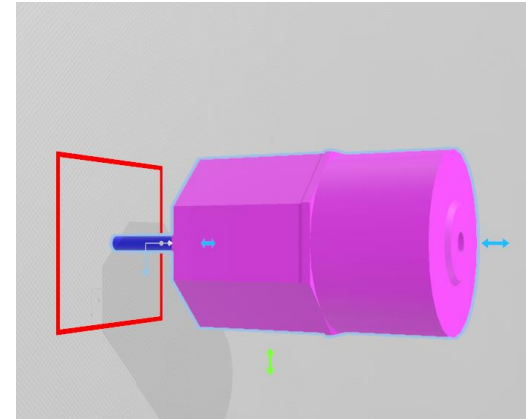
longer endcap v2.0, https://solid.jlab.org/files/CAD/SoLID_Iron_Oct20_Update_v2.0.igs

- from Whit Seay in 2020/11
- igs version is from Whit, stl is converted by Zhiwen using "freecad"
- matching Jay Benesch's magnet Opera modeling with CLEO iron in 2020 <https://solid.jlab.org/>
- the rail system is not shown

v4 CAD doesn't exist yet

File exchange between CAD and Geant4

- Geant4 -> CAD
 - VRML (facet)
 - 3d pdf
 - Good to check things, not ideal to develop further
- CAD -> Geant4
 - Step(solid) -> stl/ply/obj (facet)
 - Complicated geometry causes simulation slowing down a lot



Those tools are useful
But no perfect solution exists