SoLID Simulation Update

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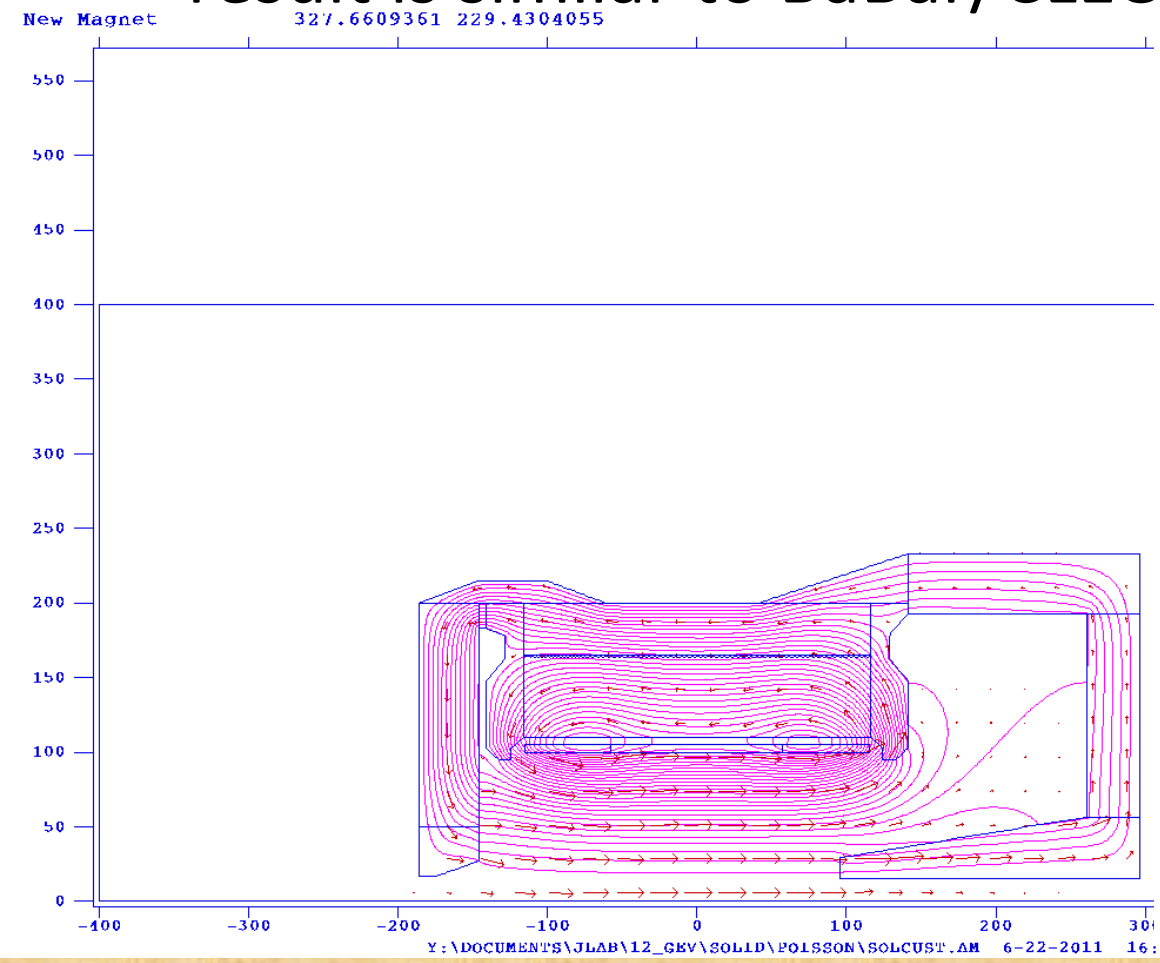
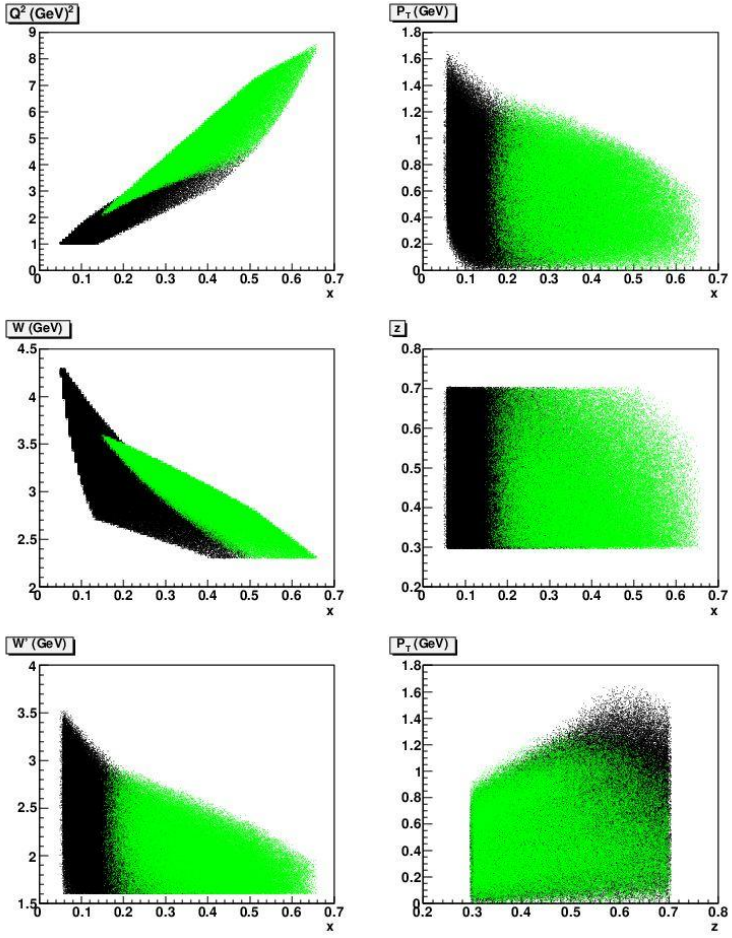
Ideal Magnet

SoLID simulation update

(Mehdi , Paul Reimer, Zhiwen Zhao)

- An ideal (short and fat) magnet and yoke are produced. Its SIDIS kinematics is studied. The result is similar to BaBar/CLEO



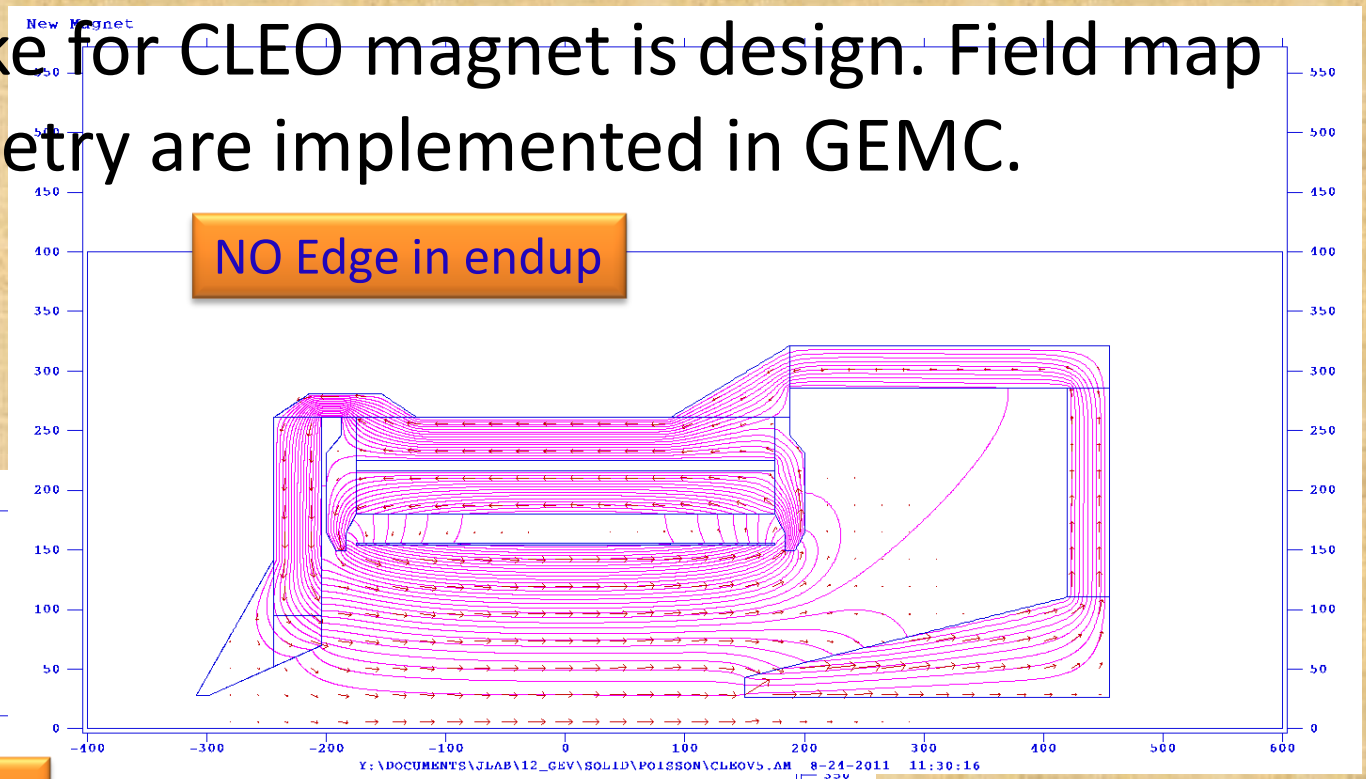


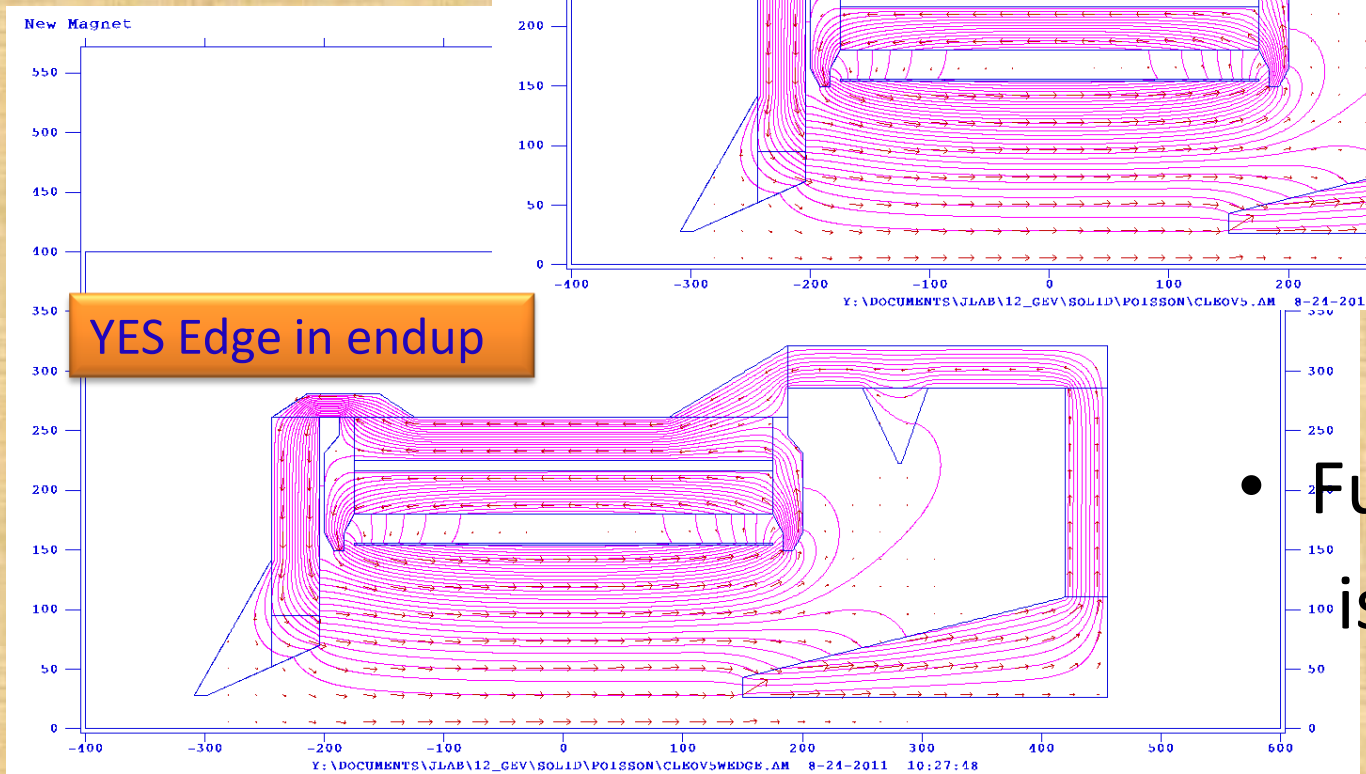
CLEO magnet

SoLID simulation update

(Paul Reimer, Yang Zhang, Zhiwen Zhao)

- A new yoke for CLEO magnet is design. Field map and geometry are implemented in GEMC.



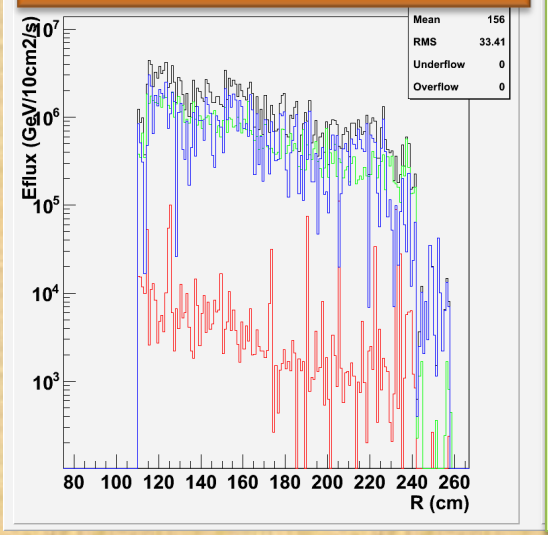


- Further tuning is still needed

Background in EC

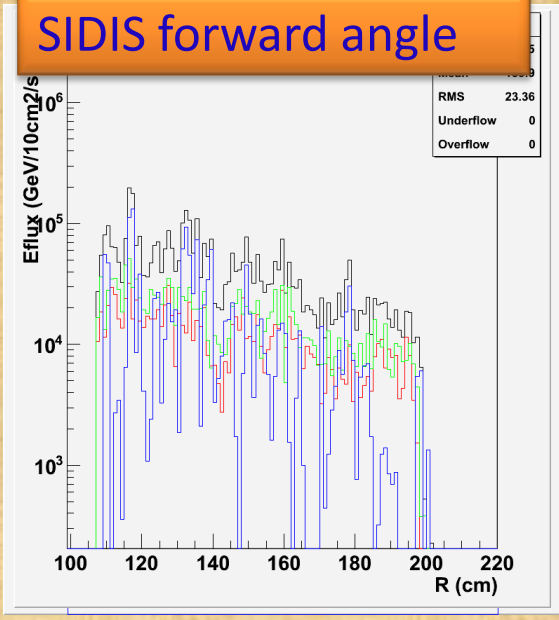
(Zhiwen Zhao, Xin Qian)

PVDIS forward angle

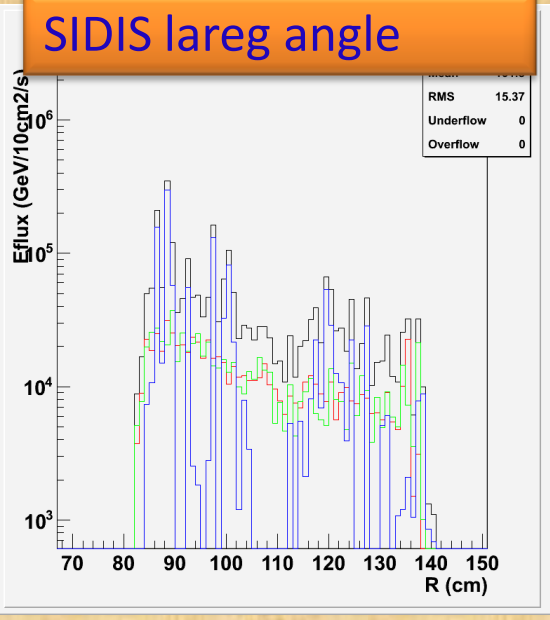


- GEMC electron and photon energy flux confirms Geant3 result.
- Hadron energy flux is under study.

SIDIS forward angle



SIDIS lareg angle



- Black: total
- Red: electron
- Green: photon
- Blue: hadron

GEM Response

(Zhiwen Zhao, Evaristo Cisbani)

```
#  * HoneyComb
#  *  0   NEMA G10 120 um
#  *  1   NOMEX    3
#  *  2   NEMA G10 120 um
#  * Drift Cathode
#  *  4   Kapton 50 um
#  *  3   Copper 5 um
#  *  5   Air 3 mm
#  * GEM0
#  *  6   Copper 5 um
#  *  7   Kapton 50 um
#  *  8   Copper 5 um
#  *  9   Air 2 mm
#  * GEM1
#  * 10   Copper 5 um
#  * 11   Kapton 50 um
#  * 12   Copper 5 um
#  * 13   Air 2 mm
#  * GEM2
#  * 14   Copper 5 um
#  * 15   Kapton 50 um
#  * 16   Copper 5 um
#  * 17   Air 2 mm
#  * Readout Board
#  * 18   Copper 10 um
#  * 19   Kapton 50 um
#  * 20   G10 120 um + 60 um (assume 60 um glue as G10)
# not implmented yet
#  * Honeycomb
#  * 21   NEMA G10 120 um
#  * 22   NOMEX    3 um
#  * 23   NEMA G10 120 um
```

- To ontain more realistic GEM response, we borrow from SBS GEM simulation and the geometry and material of GEM module are realized in GEMC.
- The EM background study is underway.

GEM Digitization

(Seamus Riordan, Richard S. Holmes)

Started and in good progress

- Borrow from SBS and implement into GEMC.
- Produce realistic GEM responses.
- This includes background and signal digitization.
- Produce tracking framework.
- The digitization standard will be expended to other sub-systems.

Summary

- SoLID GEMC Framework is ready.
- Event generators and data output are available.
- Various magnet choices are implemented.
- Fine tuning CLEO option is in progress.
- PVDIS Baffle design is under control.
- Energy flux on EC is under control.
- GEM response is in progress.
- Implementing digitization standard is in progress.