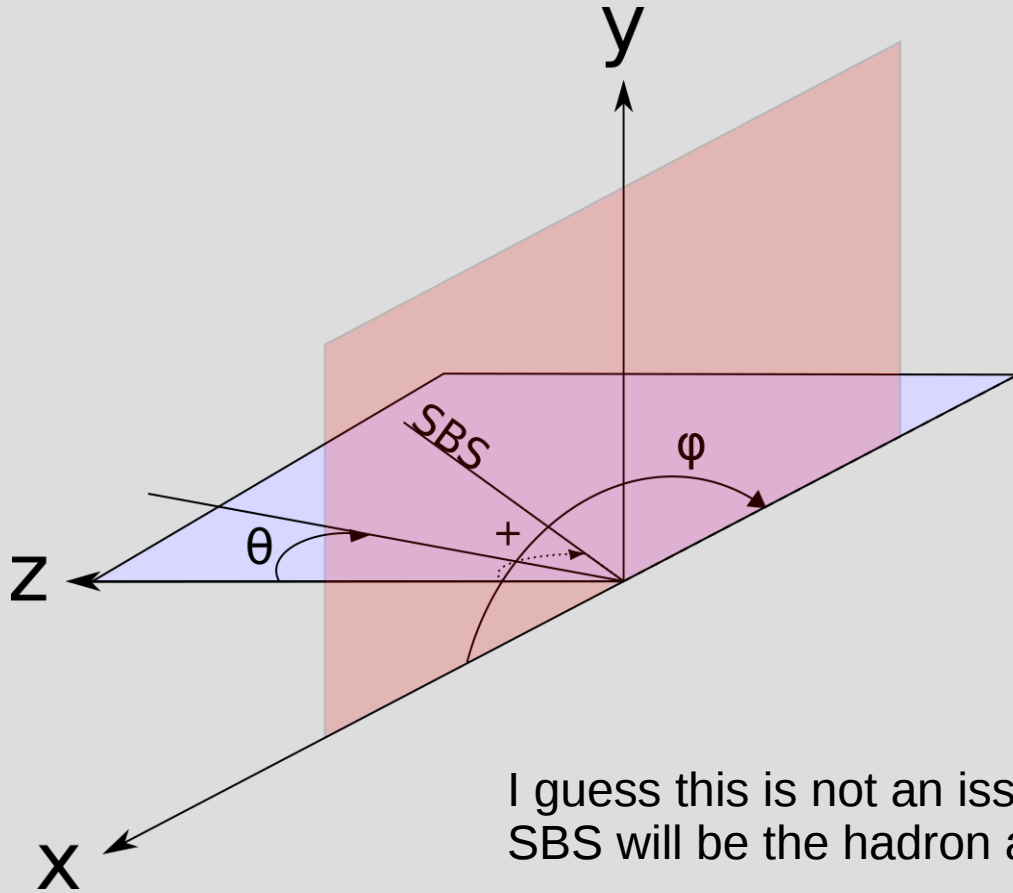


Info for future coders



SBS rotates in the xz plane positive to the right

In the electron generation, the random variable is theta (polar angle), which for $\phi = 0$, implies that its rotation is positive to the left.

Phi random is $[-12, 12]$ → the electron is generated to the opposite side to SBS.

Solution: generate the same theta but rotated 180° in phi (**thanks Eric**)

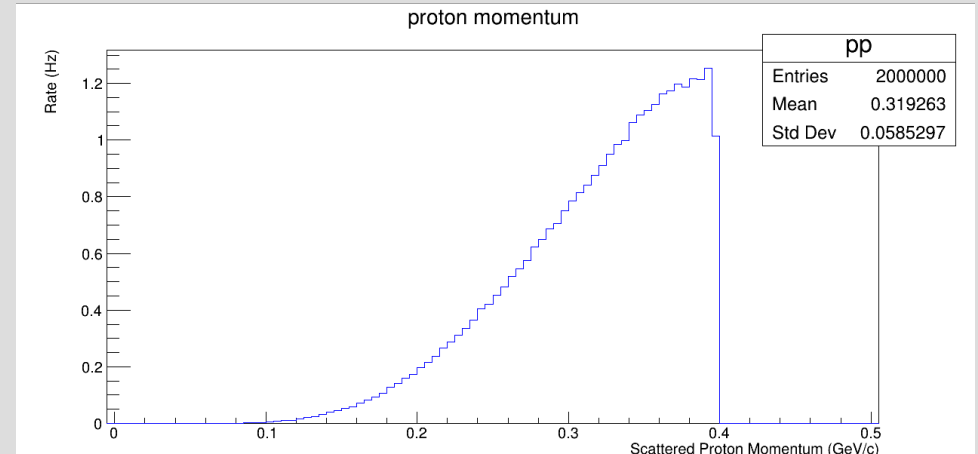
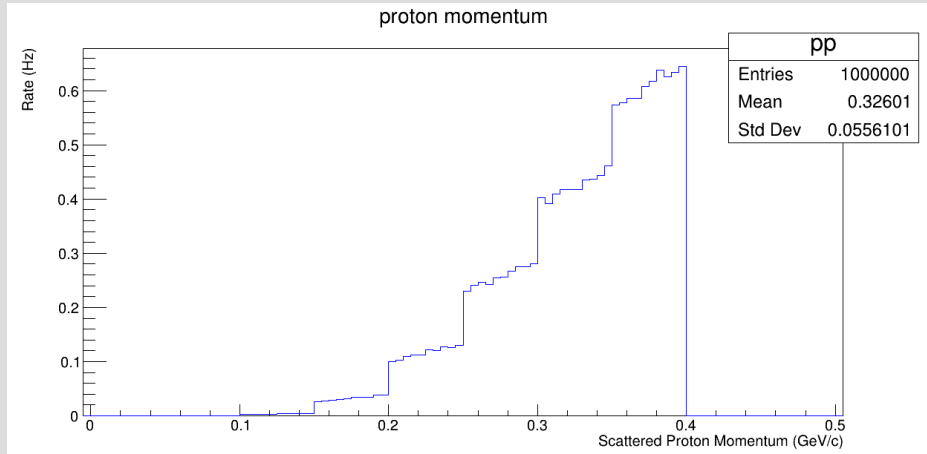
```
PhiMax = (180-12)*deg;  
PhiMin = (180+12)*deg;  
ph = CLHEP::RandFlat::shoot(PhiMin,PhiMax)
```

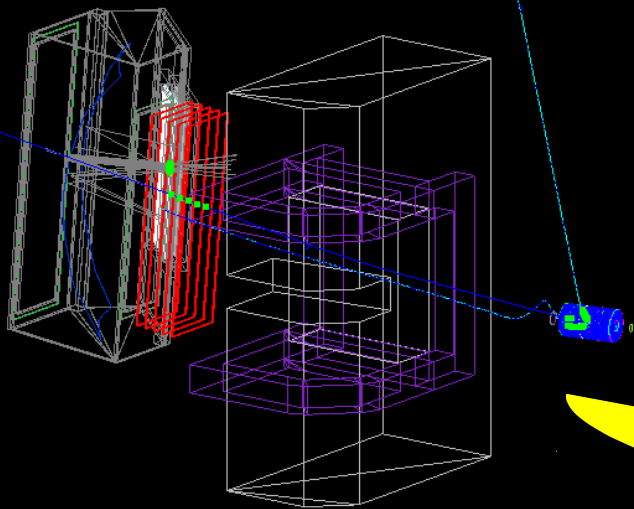
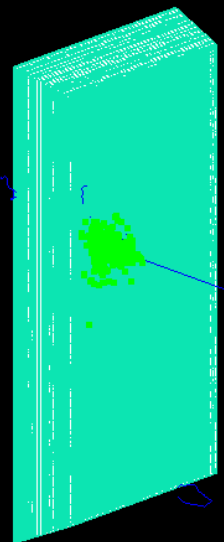
I guess this is not an issue for the other SBS experiments, since SBS will be the hadron arm. In TDIS will be the electron arm

Status of the code

Proton distribution shows a discrete structure due to the coarse momentum binning of the pion SF parametrization.

A fine binning is now applied, in this case: 100 bins \rightarrow 3MeV step

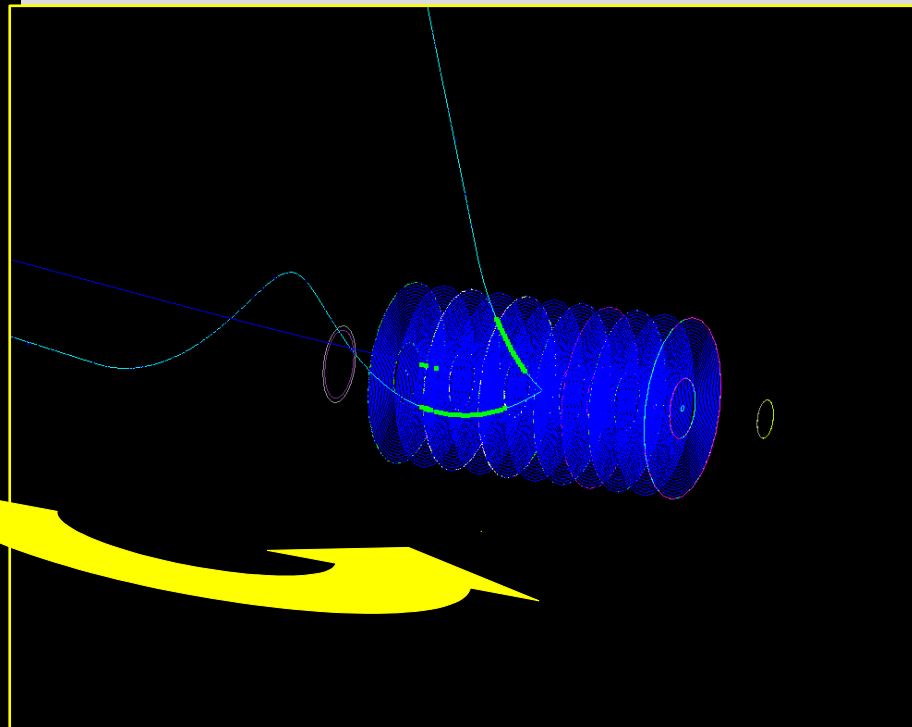




Eric and Rachel's G4 geometry

Started to coded the gun from the generator.

Here is an example of a TDIS event in Deuterium



Next

- Finish the other gun cases
- Test with Pythia
 - I would like to try Pythia8 but:
“At least initially, PYTHIA8 did not include lepton-hadron physics. That was the original reason we didn’t adopt PYTHIA8. If PYTHIA8 now has lepton-hadron physics, then maybe we should revisit. Andrew”
 - Not clear for me if that happen in the three updates of Pythia, thus, I will move with Pythia6
- Clean the code and fix nomenclature
 - I will upload to my github place, soon-ish.