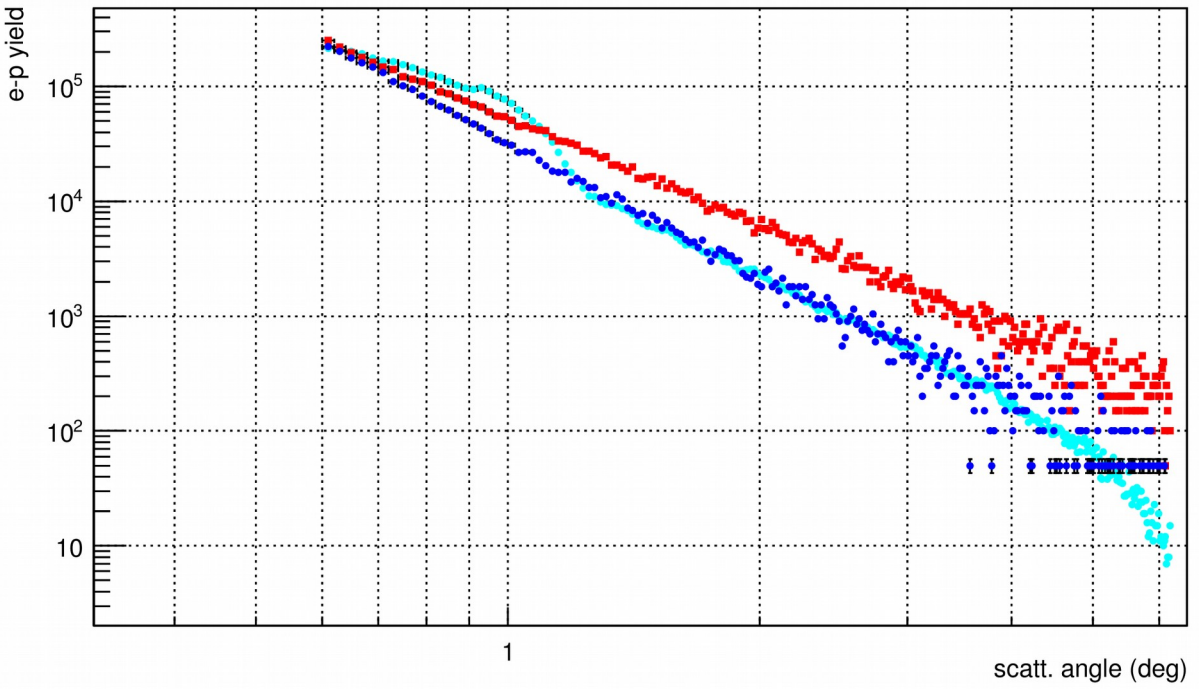
From simulation, a compare between with and without beam pipe

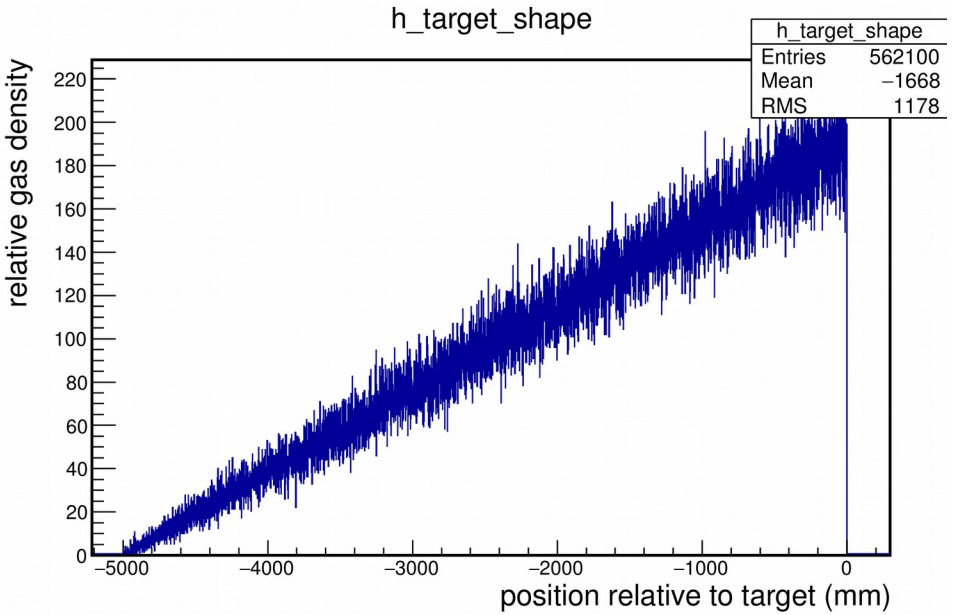
- Geometry setup checked against Chao Gu's setup (more work needs to be done on this part)
- Event generator from Gramolin
- Beam pipe thickness using the value from Eugene



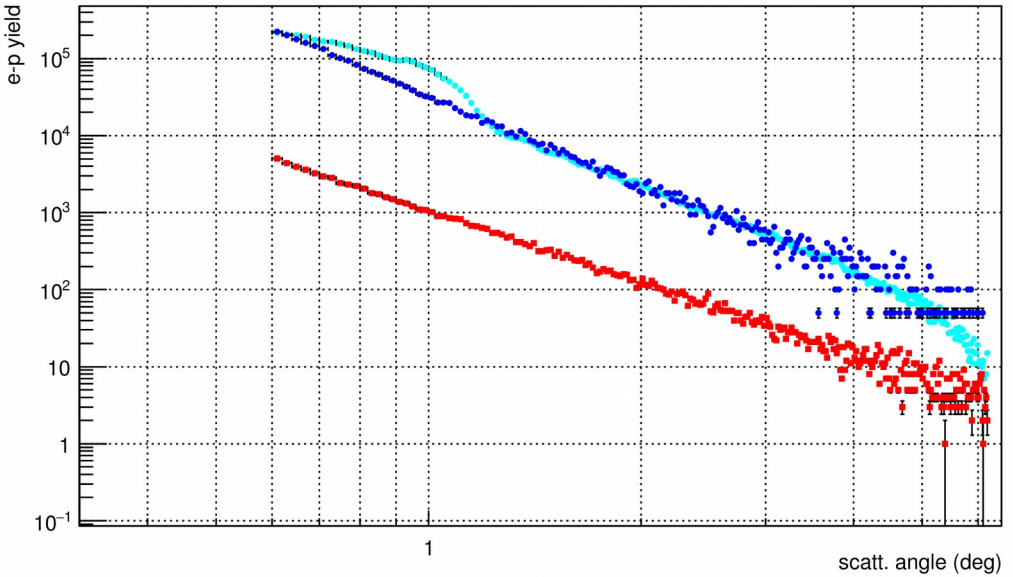
- Red: simulated background WITHOUT adding beam pipe
- Blue: simulated empty target run WITH beam pipe
- Light blue: empty target run (from experiment)

In simulation, just add beam pipe and residue gas, nothing else

Empty target density distribution
(in simulation setup, upstream part)



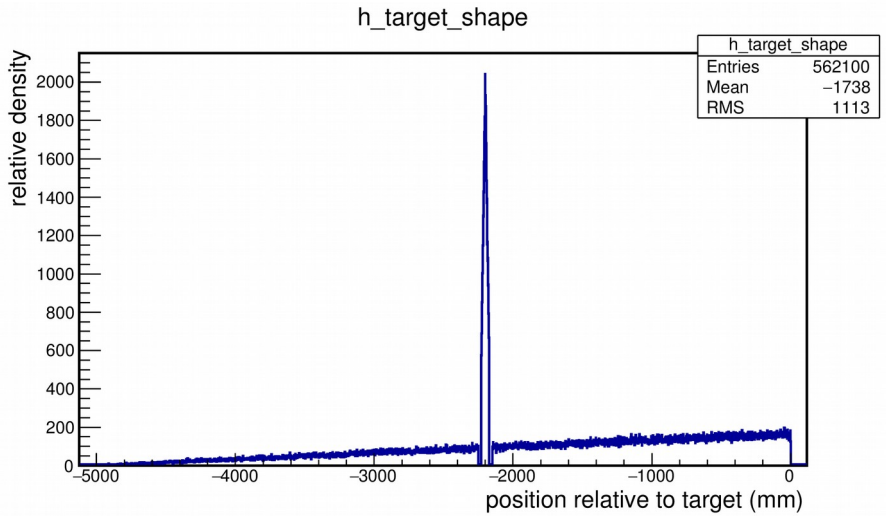
e-p yield



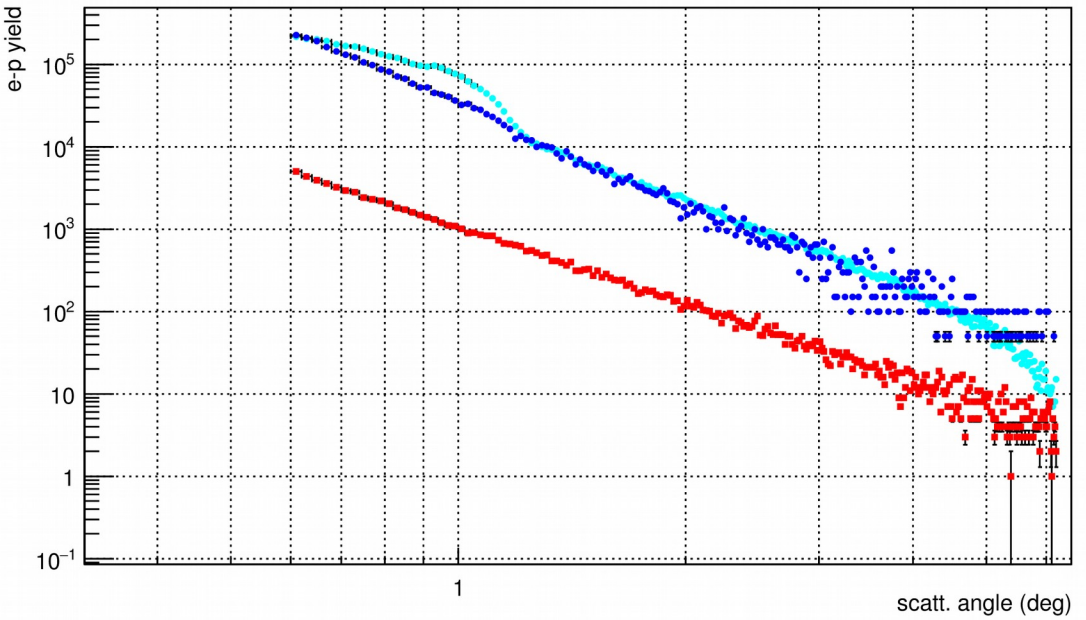
- Red: simulated data run
- Blue: simulated empty target run
- Light blue: empty target run (from experiment)

In simulation, suppose a high density area exist, 10 times larger than normal

Target density distribution
(in simulation setup, upstream part)



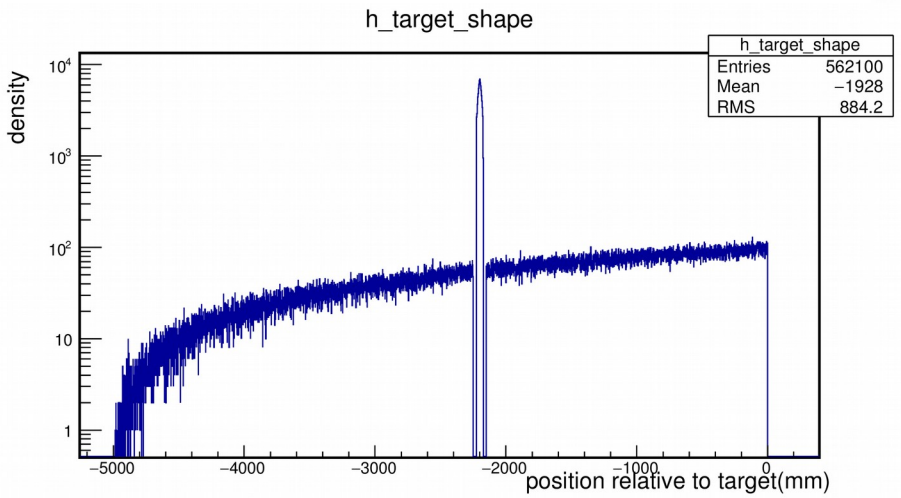
e-p yield



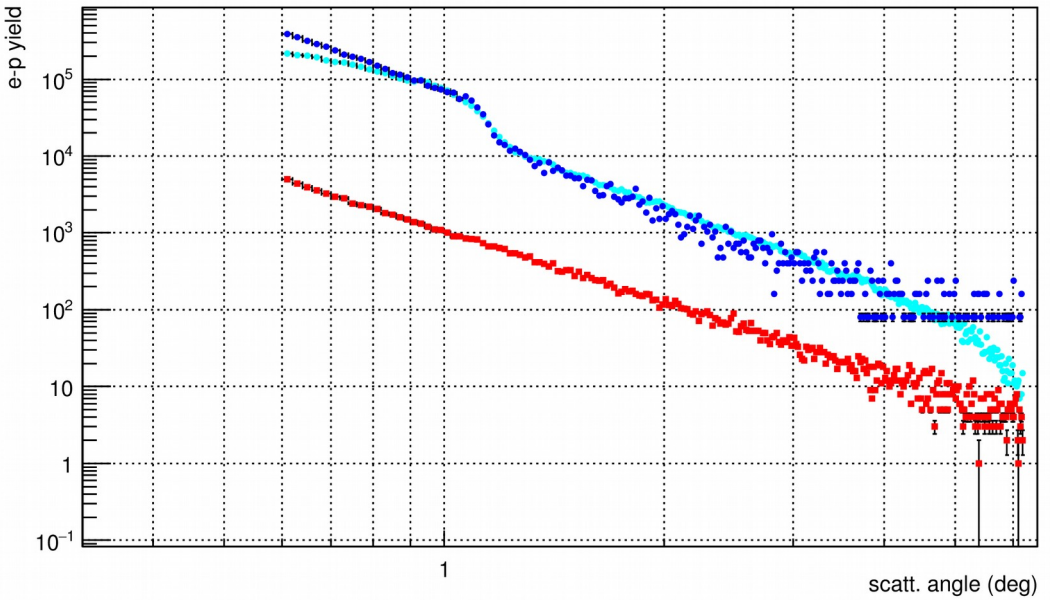
- Red: simulated data run
- Blue: simulated empty target run
- Light blue: empty target run (from experiment)

In simulation, suppose a high density area exist, 60 times larger than normal

Target density distribution
(in simulation setup, upstream part)



e-p yield

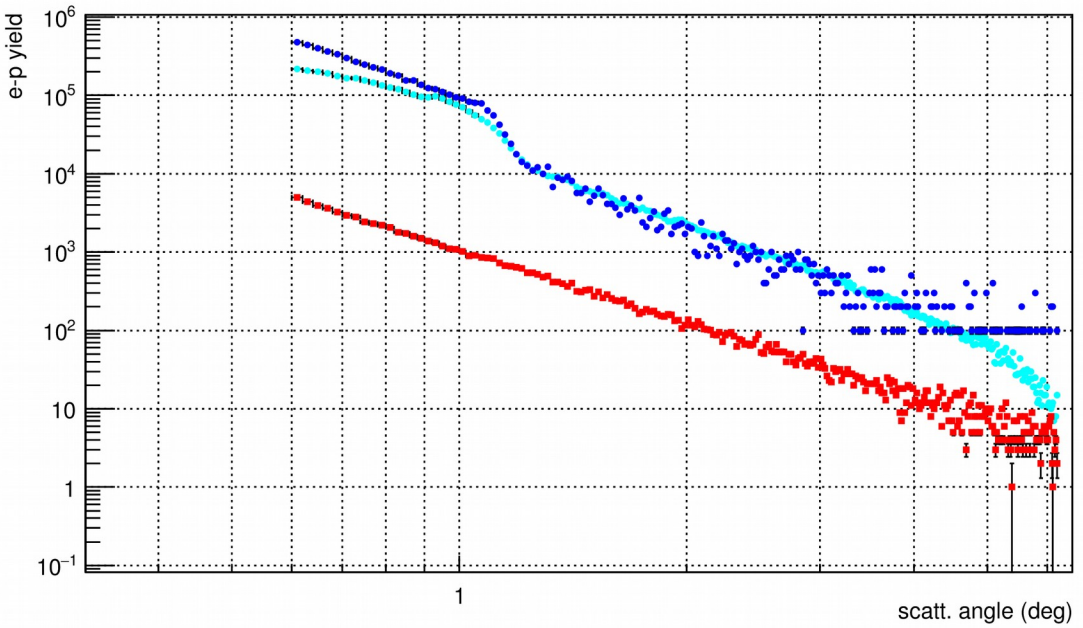


- Red: simulated data run
- Blue: simulated empty target run
- Light blue: empty target run (from experiment)

In simulation, suppose a high density area exist, 80 times larger than normal

Target density distribution
(in simulation setup, upstream part)

e-p yield



Next steps:

- Will compare with gas density from experiment.
- Need to compare with upstream beam line drawing in detail

- Red: simulated data run
- Blue: simulated empty target run
- Light blue: empty target run (from experiment)