

- Try three different angles, check the intercept
- Follow the 45 degree photon to the cylindrical mirror to check the accuracy of the bounce
- Also check “heading” between intercepts

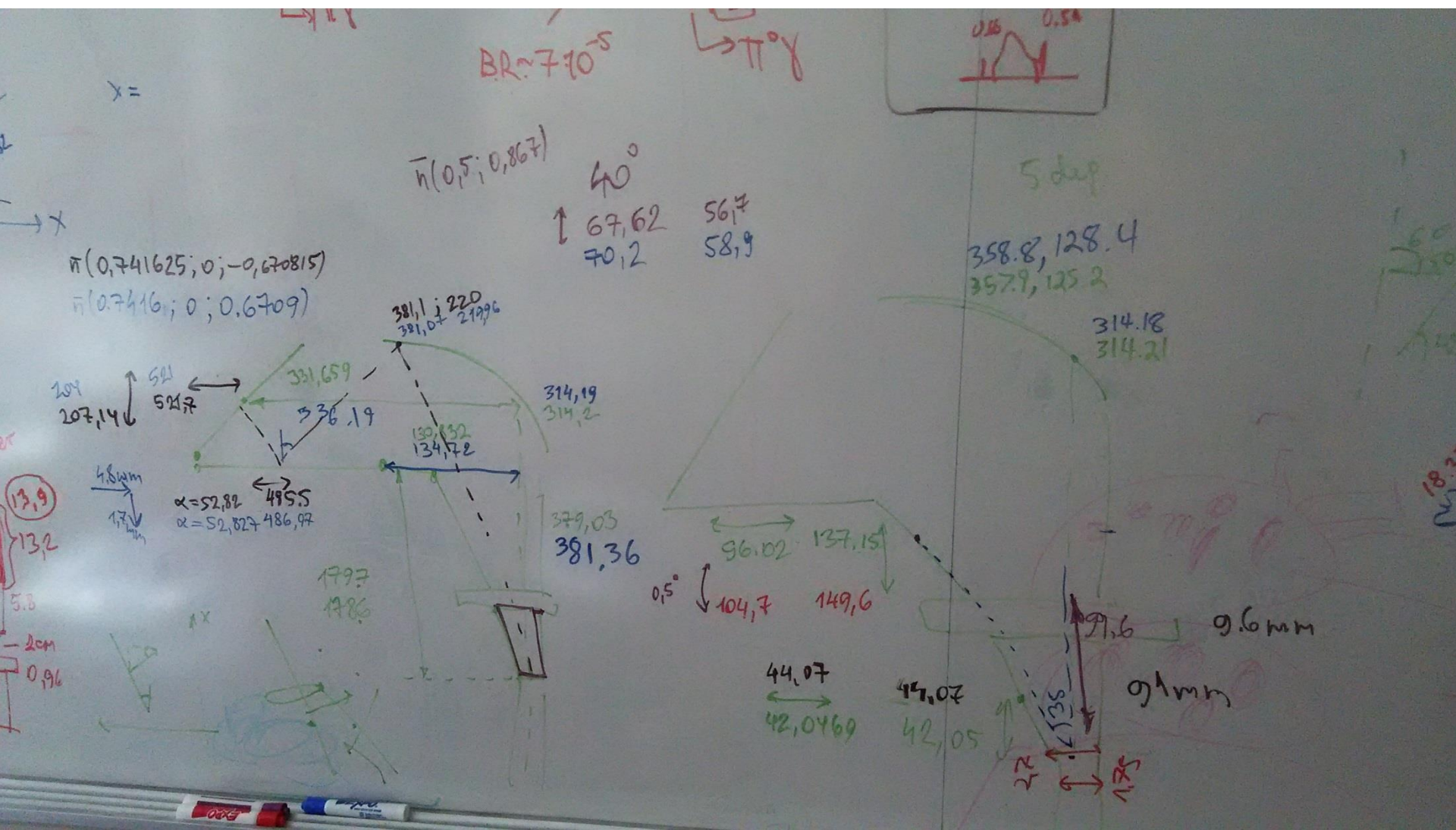
Number	Angle	Geant X	FastDirc X	Analytic X
1	45	42.05	43.49	43.48
2	40	56.70	58.92	58.90
3	35	96.02	104.77	104.73

Number	Angle	Geant Y	FastDirc Y	Analytic Y
1	45	42.05	43.49	43.48
2	40	67.62	70.22	70.20
3	35	137.15	149.64	149.56

1-3 effective wedge angle for intercepts	
Geant	29.58
FastDirc	30.00
Analytic	30.00

Number	Angle	Geant Angle	FastDirc Angle
1	45	45.00	45.00
2	40	39.98	40.00
3	35	35.00	35.00

#1 post-wedge heading at cylindrical mirror							
Start				End			
Geant X	Geant Y	FastDirc X	FastDirc Y	Geant X	Geant Y	FastDirc X	FastDirc Y
42.05	42.05	43.49	43.49	125.2	357.9	127.93	358.68
Geant Heading				FastDirc Heading			
75.25				75.00			



Geometry Comparisons

# Conclusions

- It appears Geant is intercepting the wedge as if it were 29.6 deg and bouncing as if it were 30.1 deg
  - True across 2 different volumes, both using 30 deg
  - Bounce amounts to  $\sim 4$  mrad
- Geant accurately tracks photons directly to cylindrical mirror
  - Therefore, it seems shallow intercept is the problem

$\theta=4.00$ ,  $\varphi=40.00$ ,  $N=472921$

