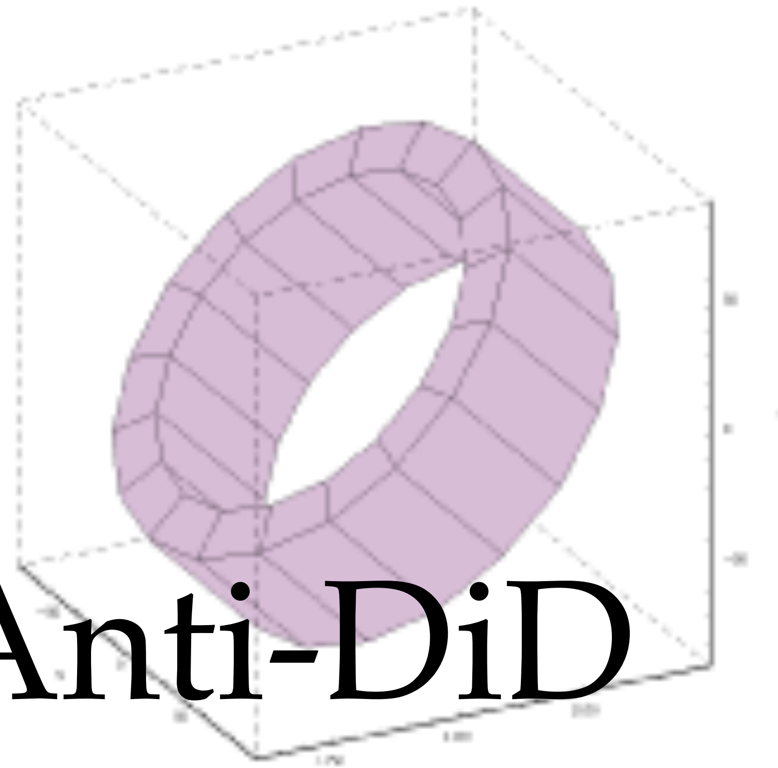
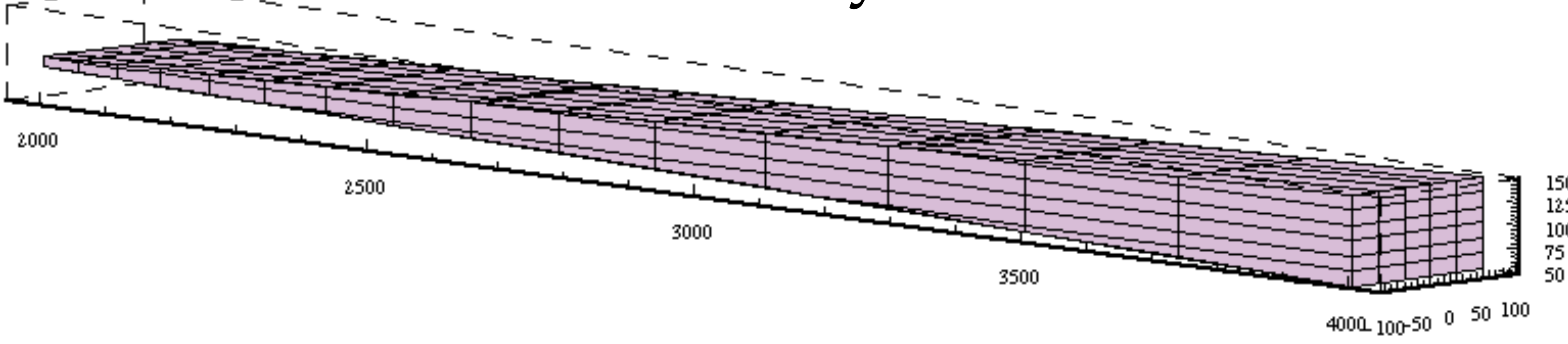


Passive Anti-DiD

Y. Iwashita, Kyoto Univ.



2008.10.25

Flux lines needed

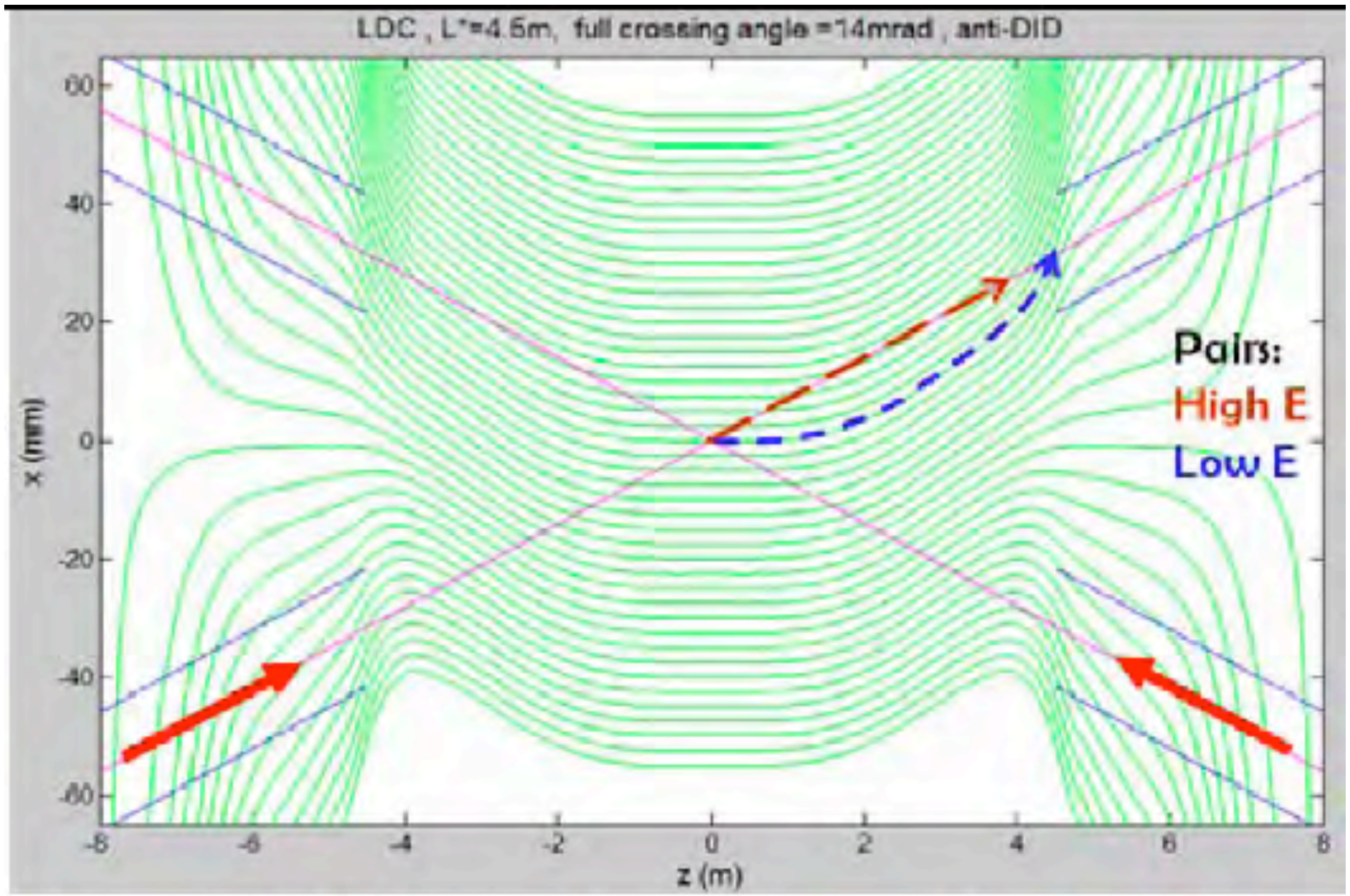


Figure 4: Field lines in LDC detector with anti-DID. The anti-DID field shape has flattened central region, to ease TPC calibration. The total crossing angle is 14mrad.

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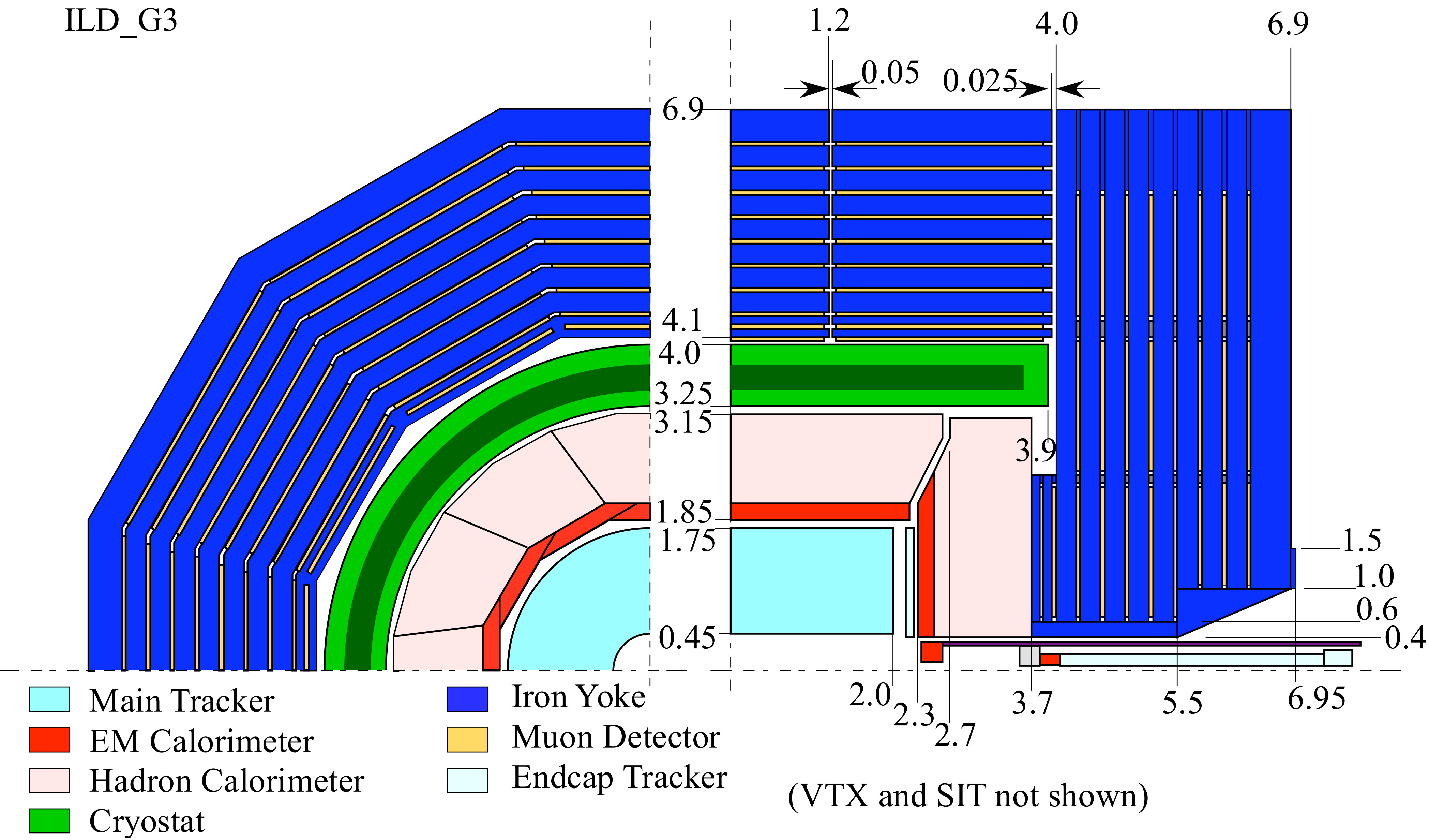
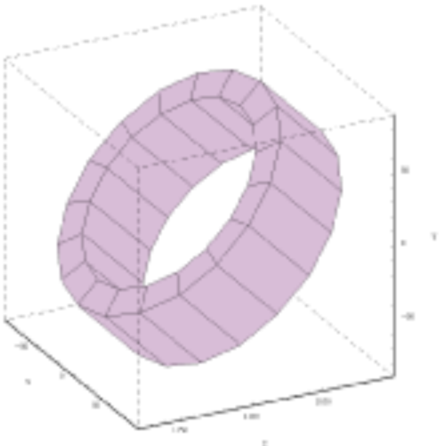
ILD_G3

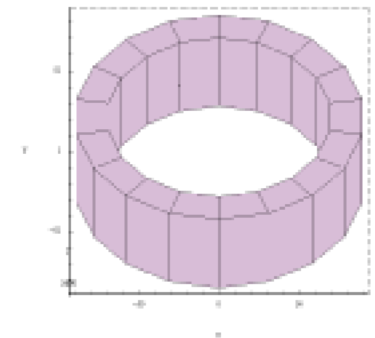


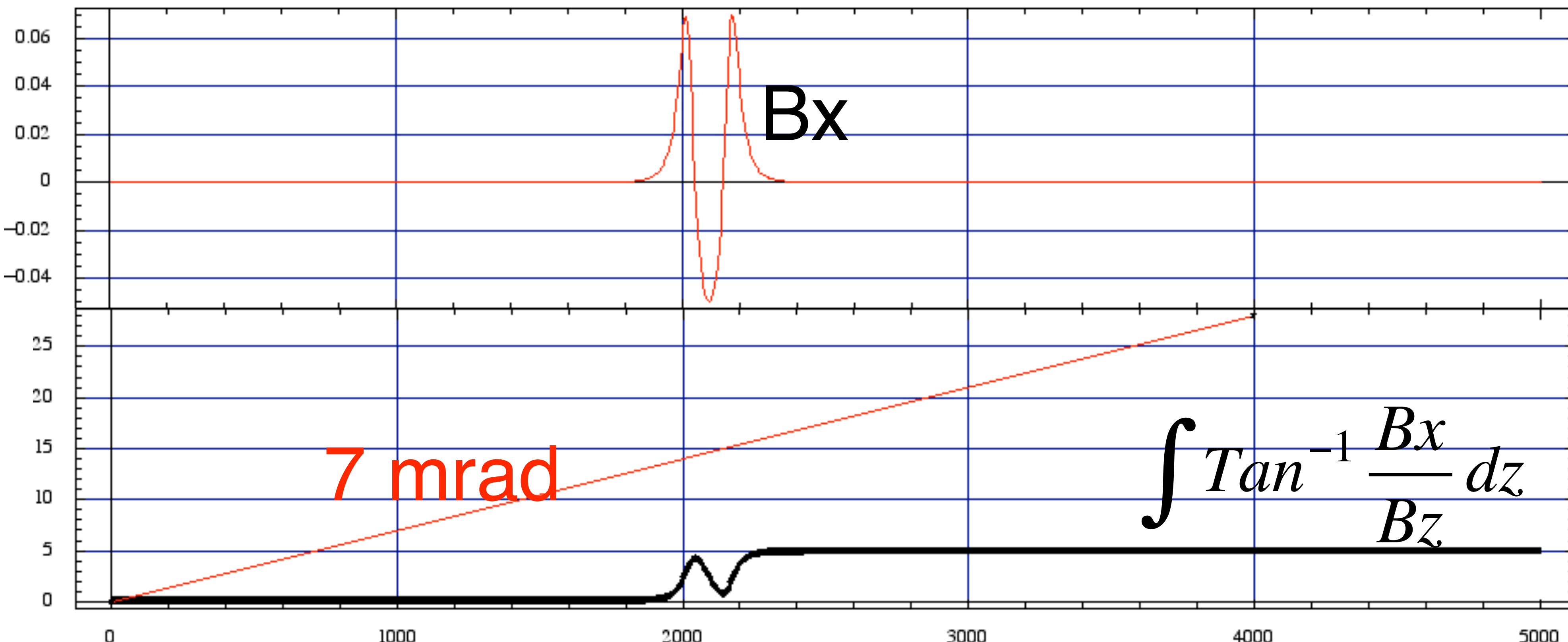
ILD_G3
1.2
4.0
6.9
0.05
0.025
6.9
4.1
4.0
3.25
3.15
3.9
1.85
1.75
0.45
1.5
1.0
0.6
0.4
2.0
2.3
2.7
3.7
5.5
6.95
Main Tracker
EM Calorimeter
Hadron Calorimeter
Cryostat
Iron Yoke
Muon Detector
Endcap Tracker
(VTX and SIT not shown)

Single Tilted Ring



- 45 °
- r1=70; r2=90; thk=60





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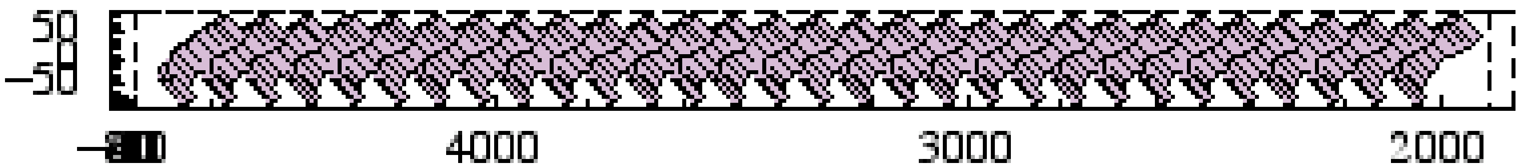
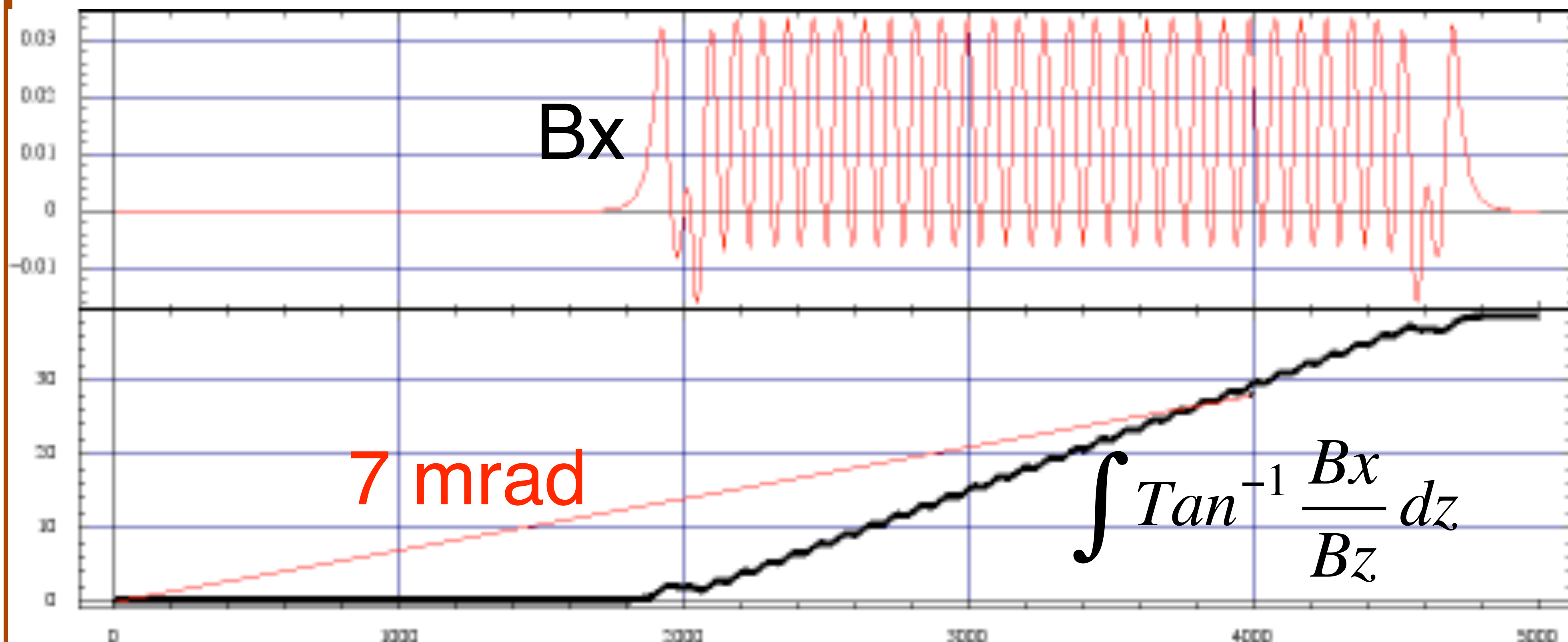
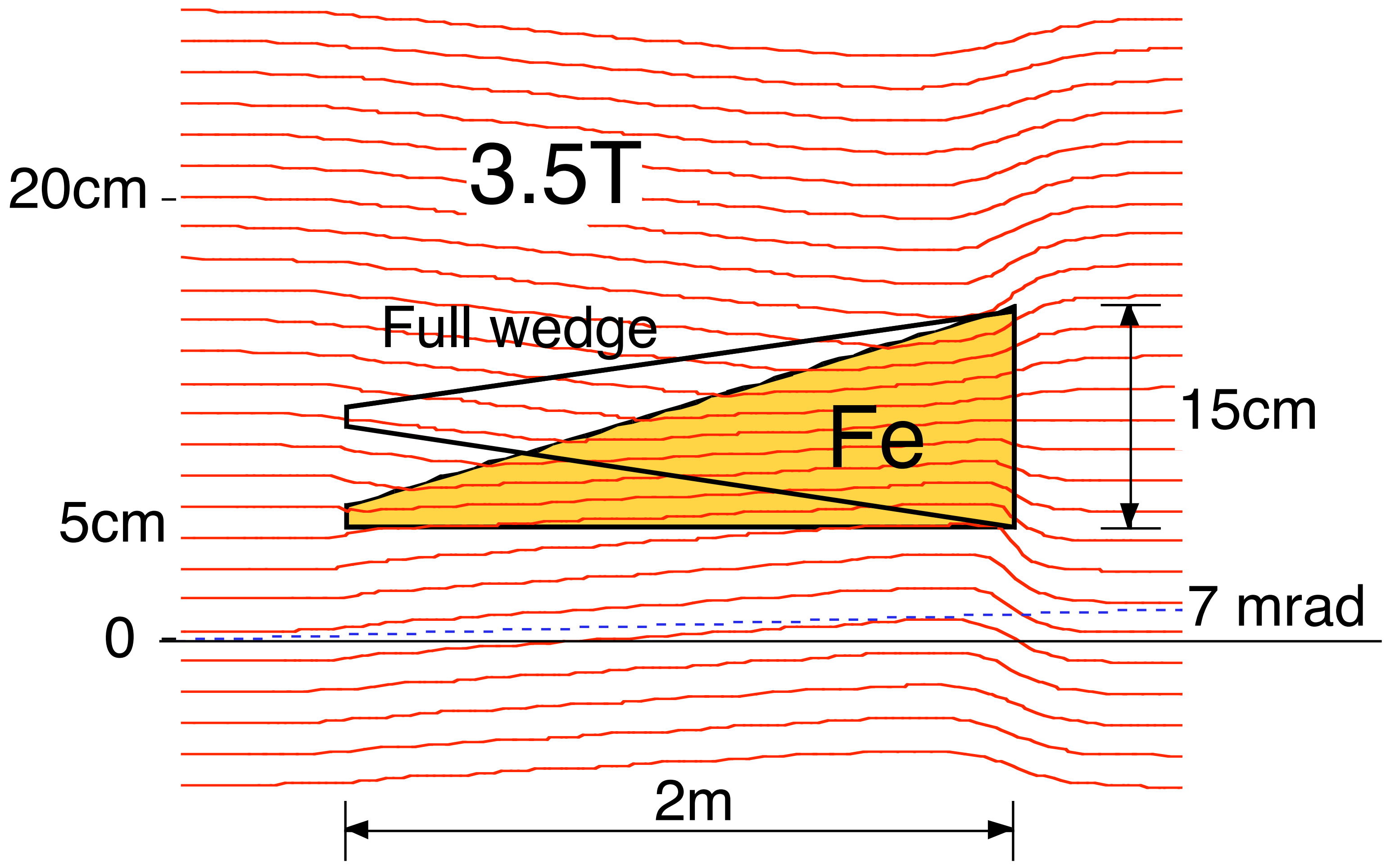
Train of Tilted Rings

r1=70;r2=90;thk=60;dist=90;num=30; rat=1;

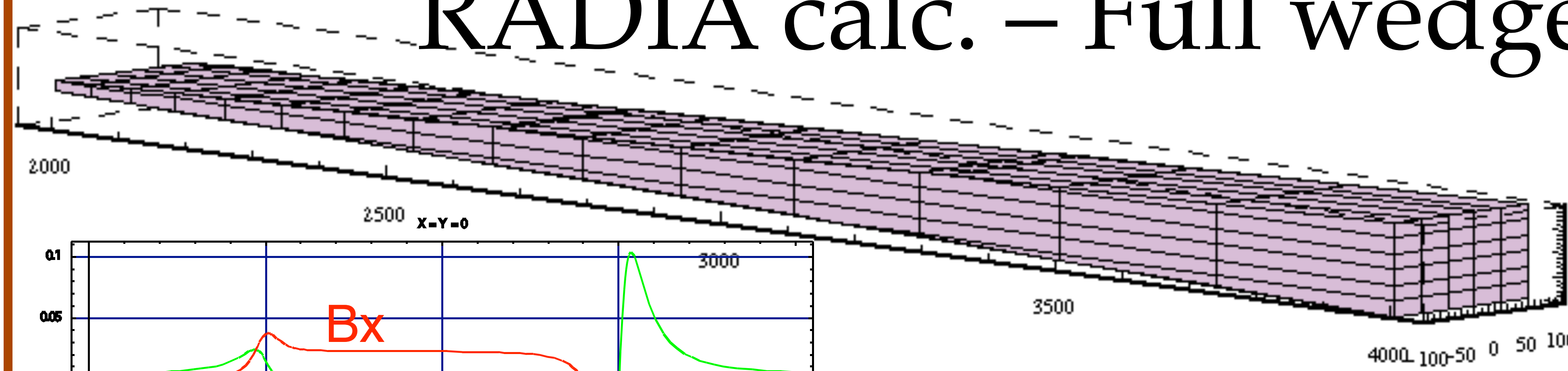


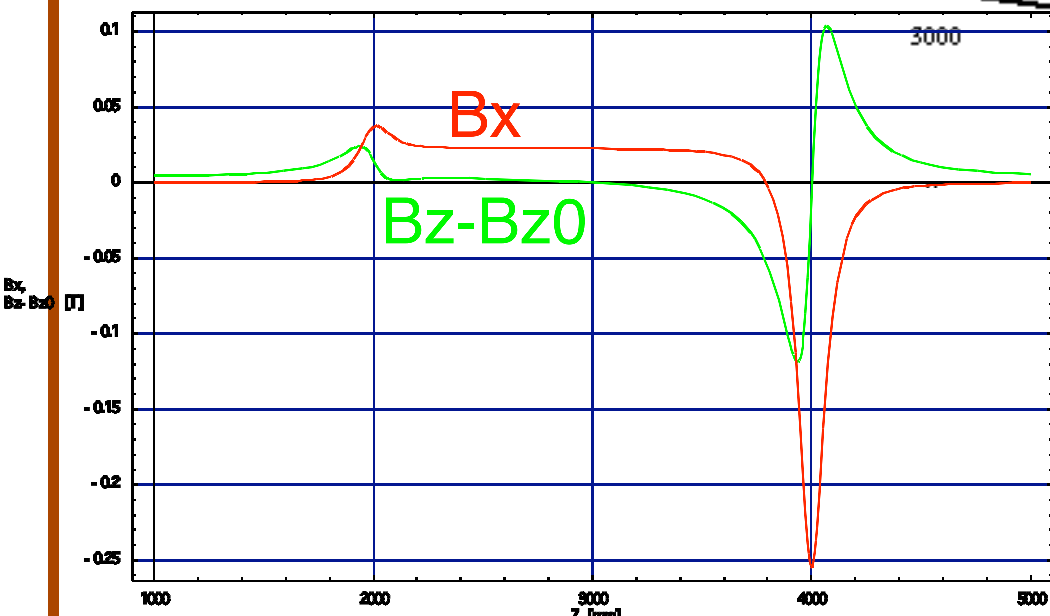


2D calculation – Half wedge



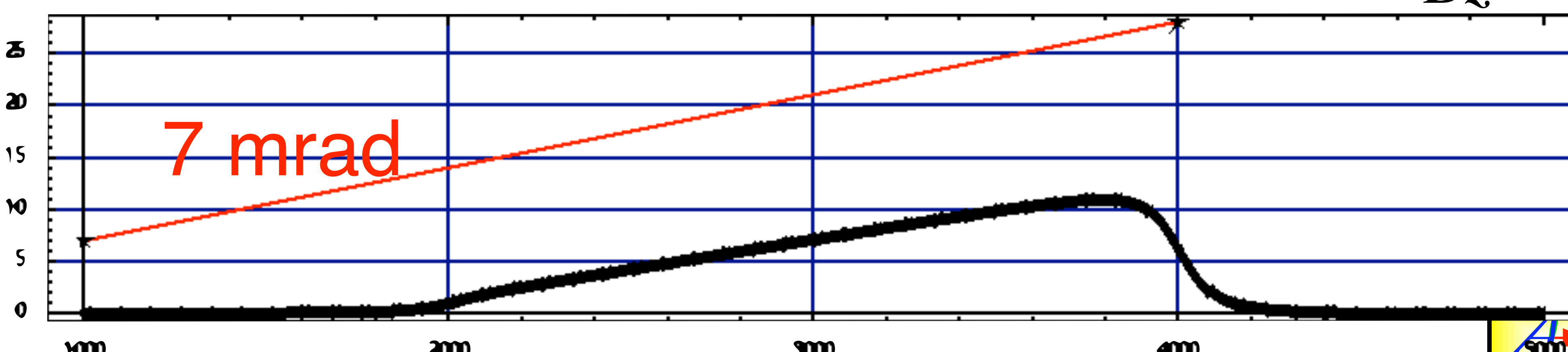
RADIA calc. – Full wedge



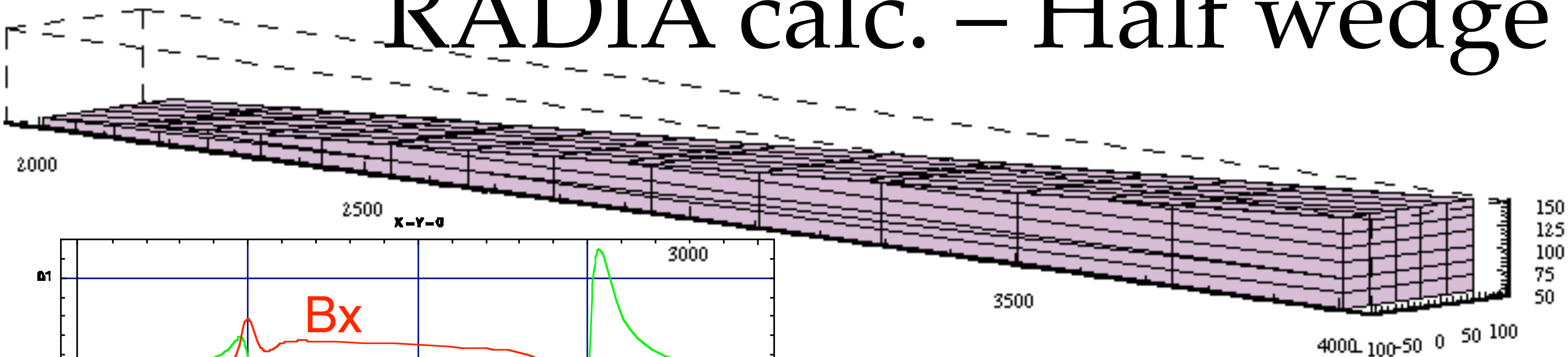


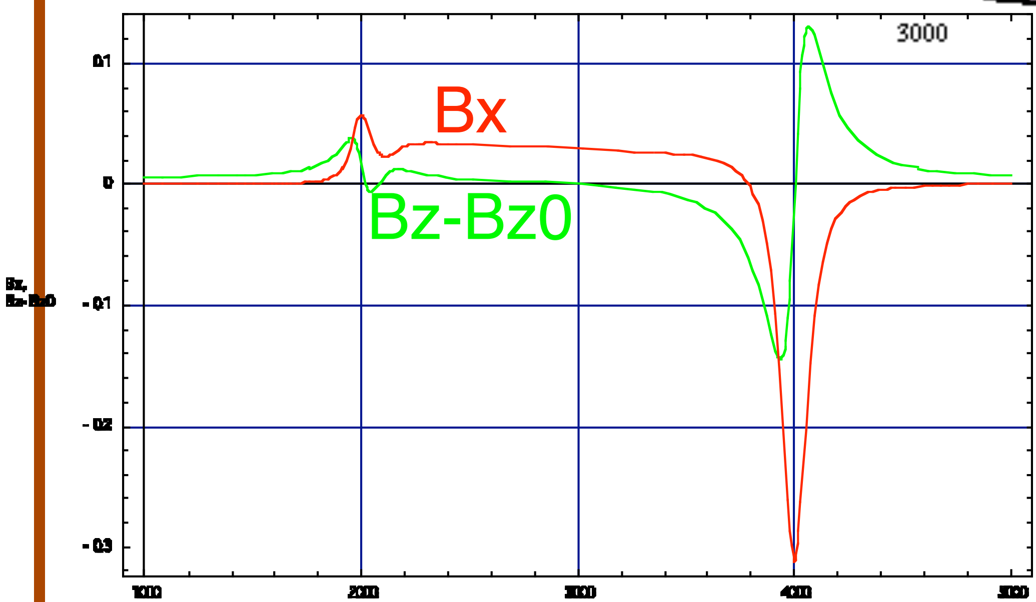
- No force in a uniform field.

$$\int Tan^{-1}\frac{Bx}{Bz}\,dz$$



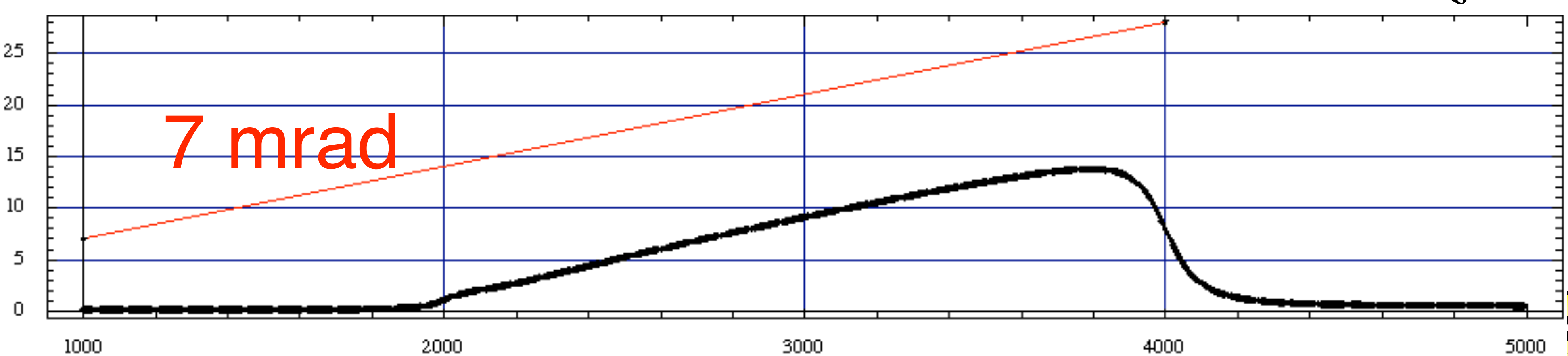
RADIA calc. – Half wedge





- Small torque

$$\int Tan^{-1}\frac{Bx}{Bz}\,dz$$



Summary

- Local correction for Anti-DiD investigated
- Active Anti-DiD uses coil current and cooling ...
  - ➡Possible source of vibration.
- Passive Anti-DiD uses solid iron.
  - ➡Bend the flux line.
    - ⦿ Tilted Rings – some what complicated
    - ⦿ Half wedge – Effective with slight torque.
    - ⦿ Full wedge – larger but no force.