MICE Shielding Update
-
Stage VI

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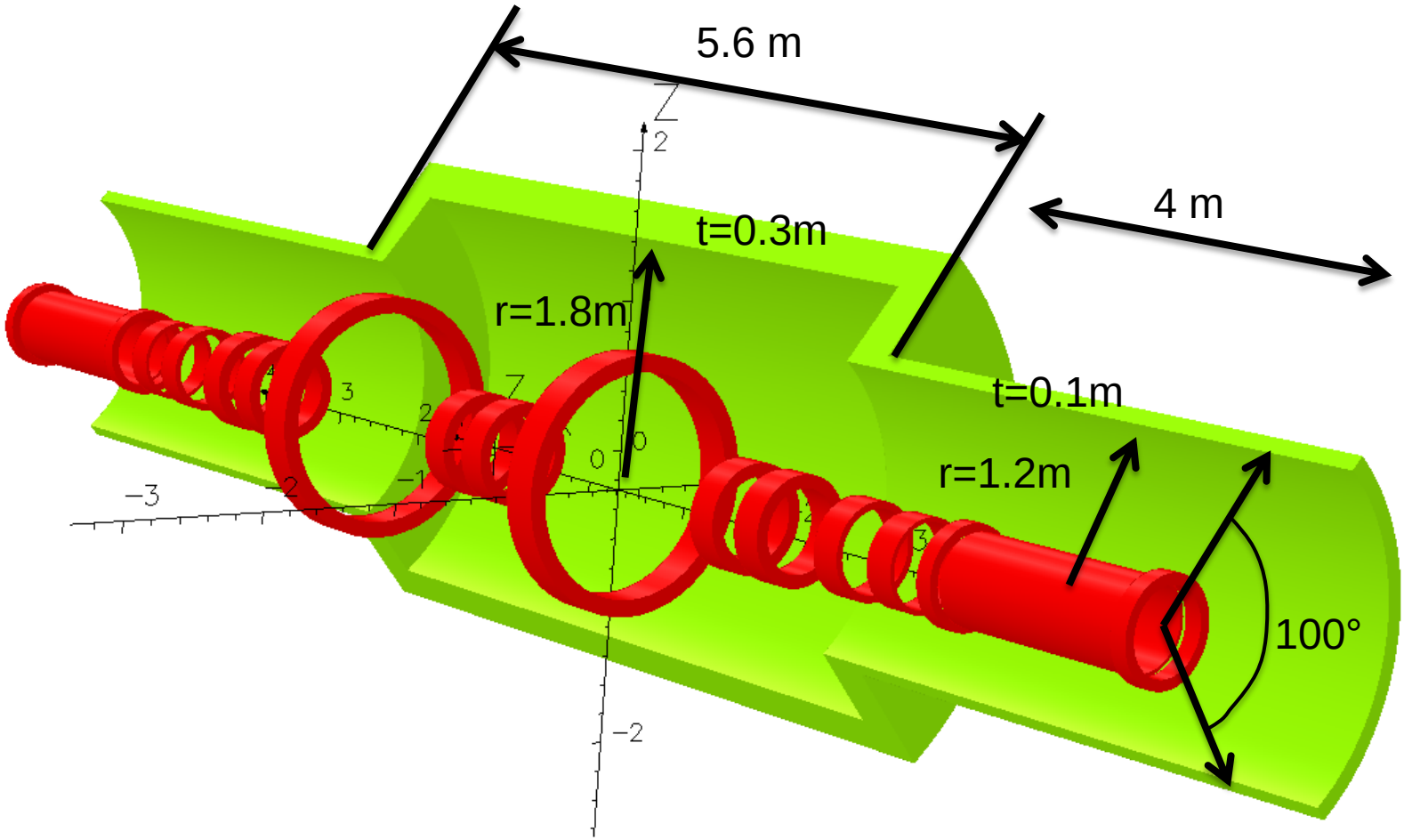
Geometry



Magnetization Flip 200 MeV

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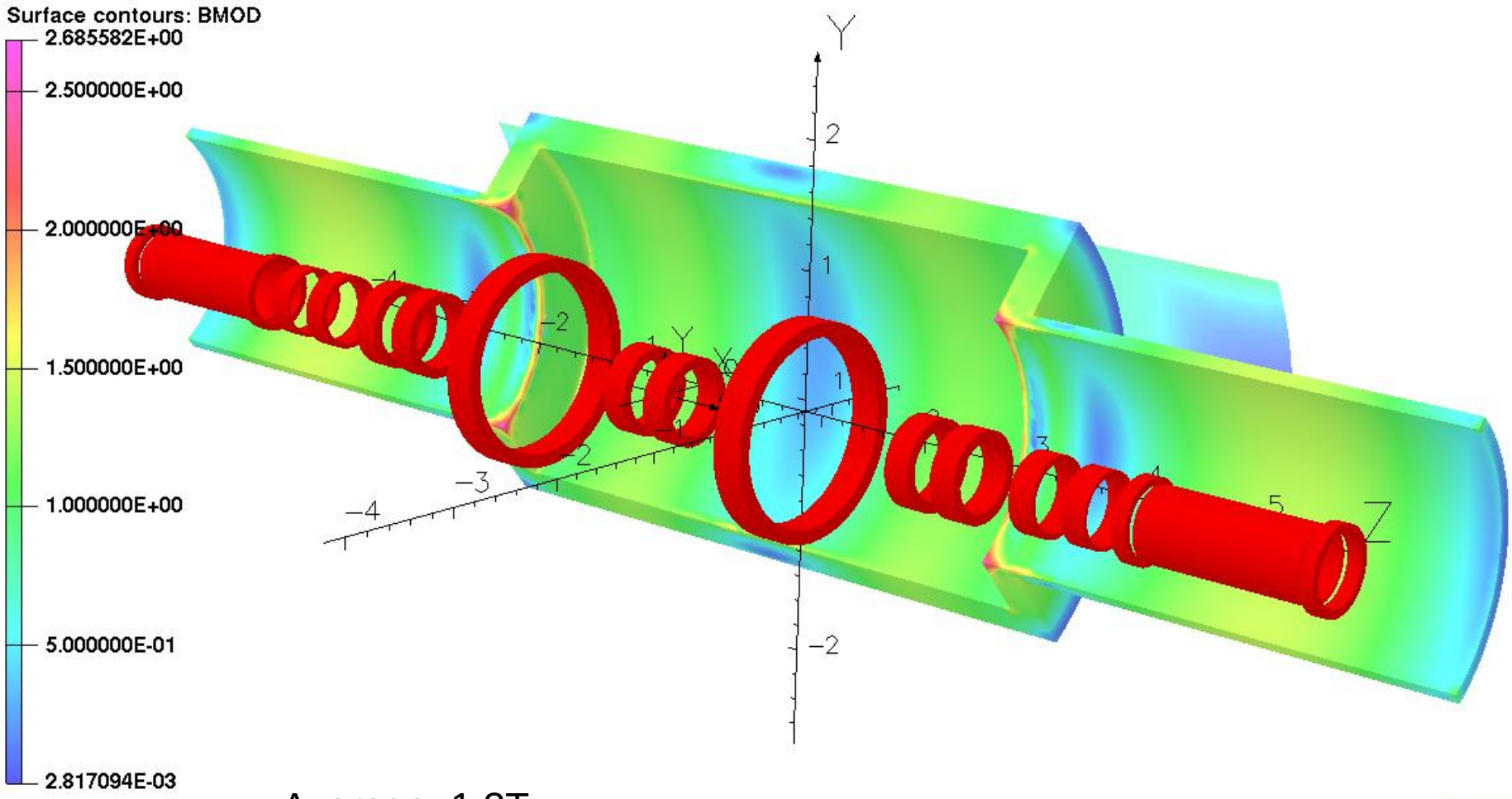
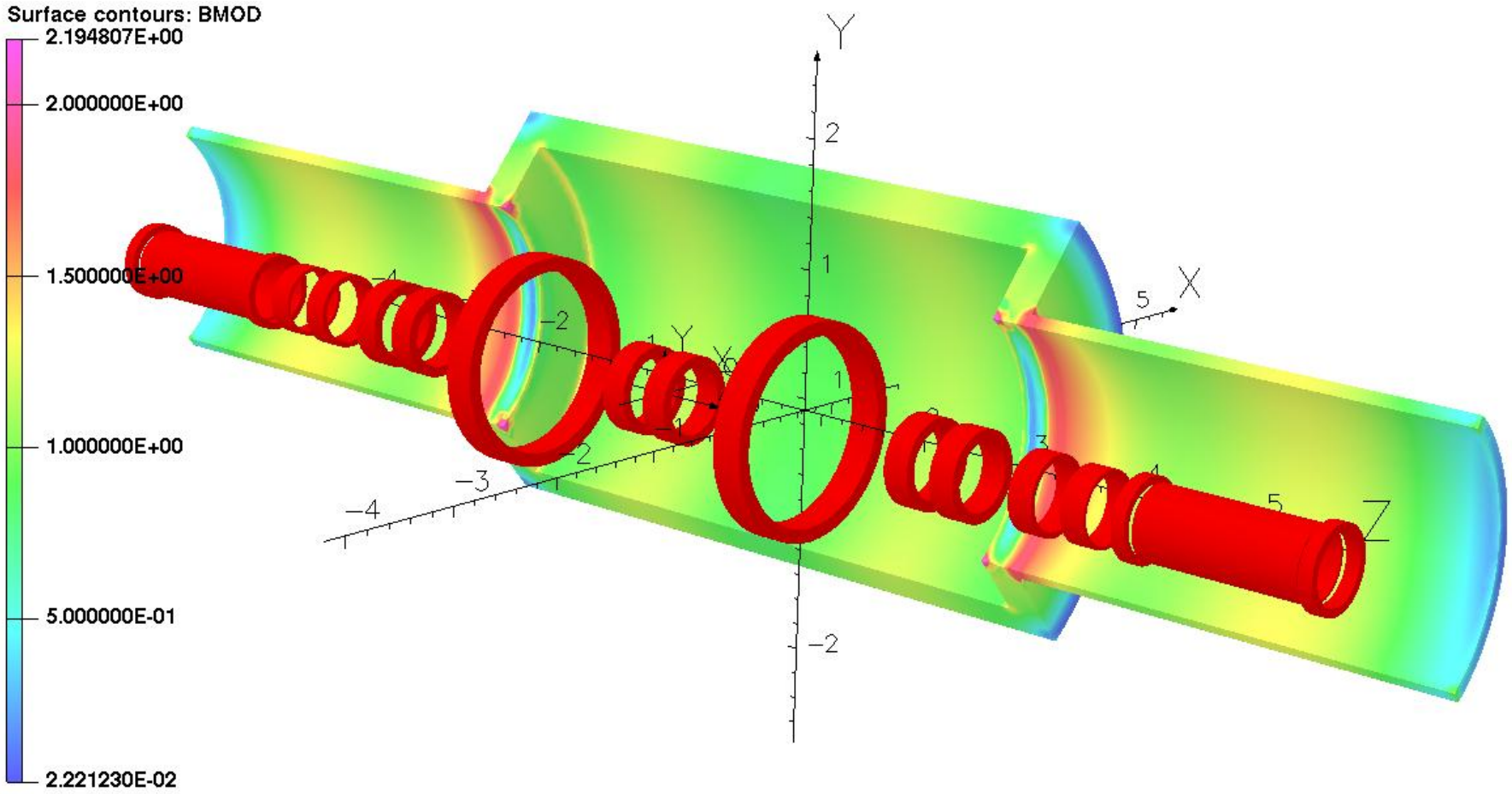


Average: 1.3T

Magnetization Solenoid 200 MeV



Average: 1.4T

No Shield

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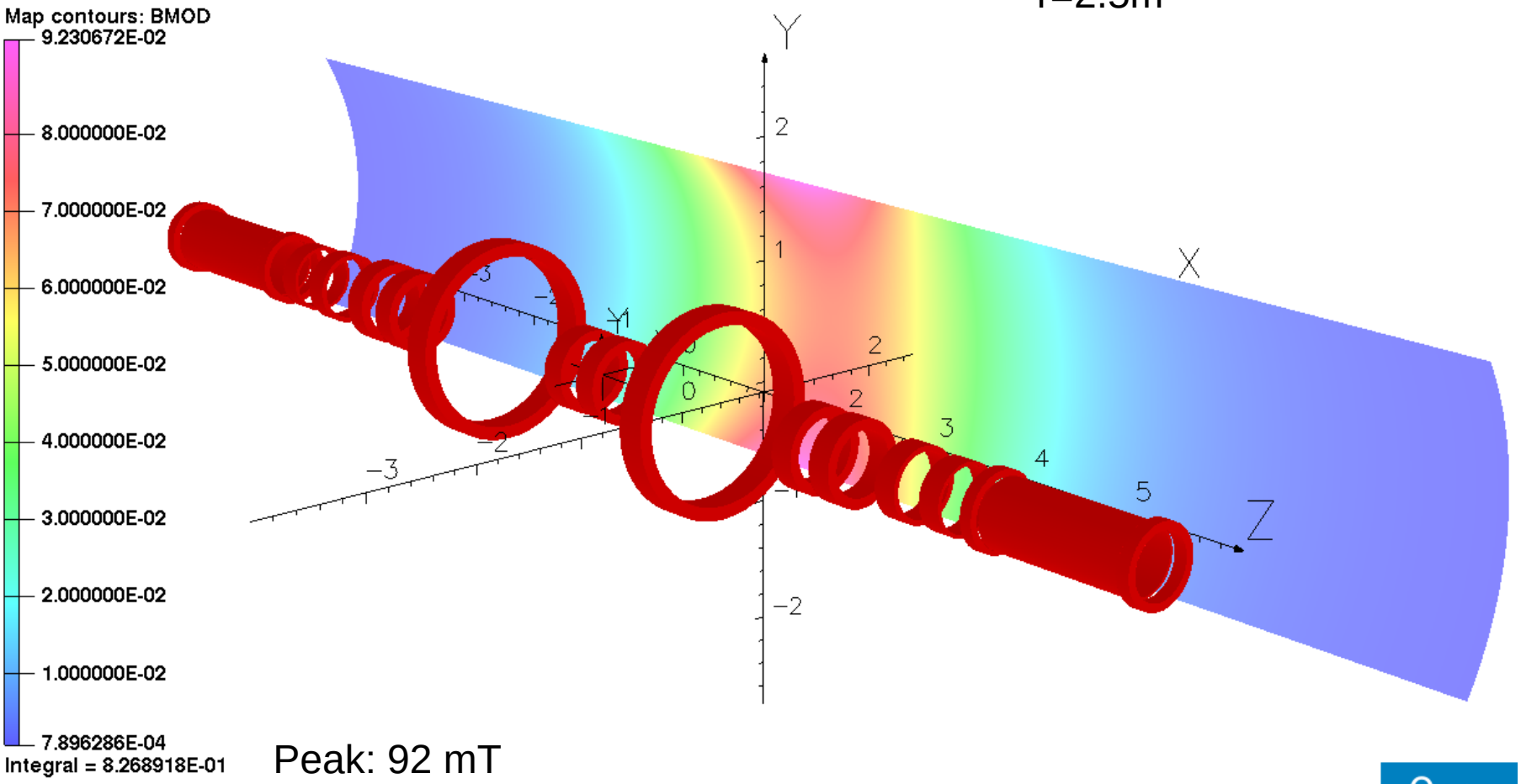
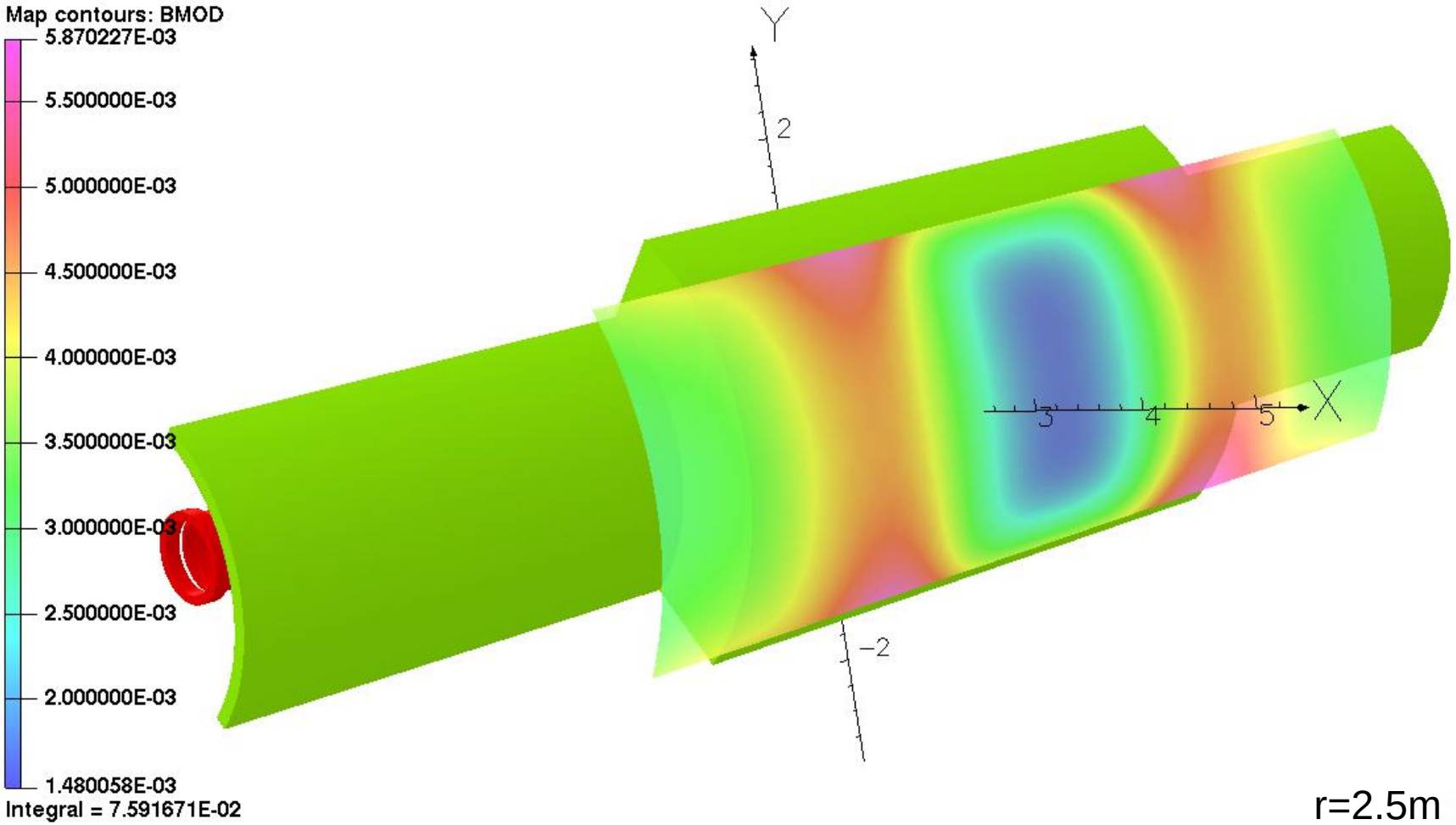
200 MeV Flip
r=2.5m



Peak: 92 mT
Average: 40 mT?

Opera

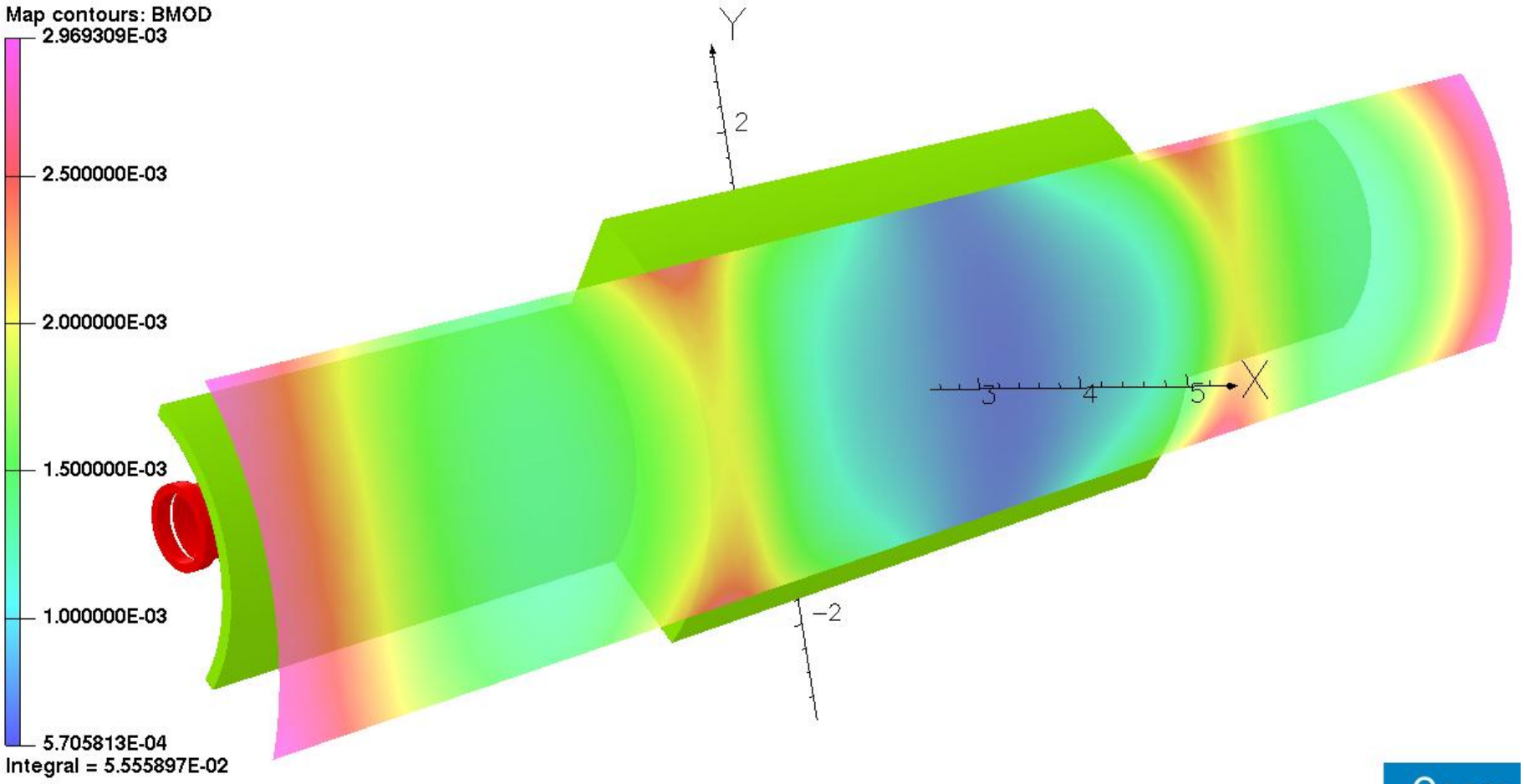
200 MeV Flip Mode



r=2.5m

Peak: 5.8 mT
Average: 3 mT?

200 MeV Solenoid Mode

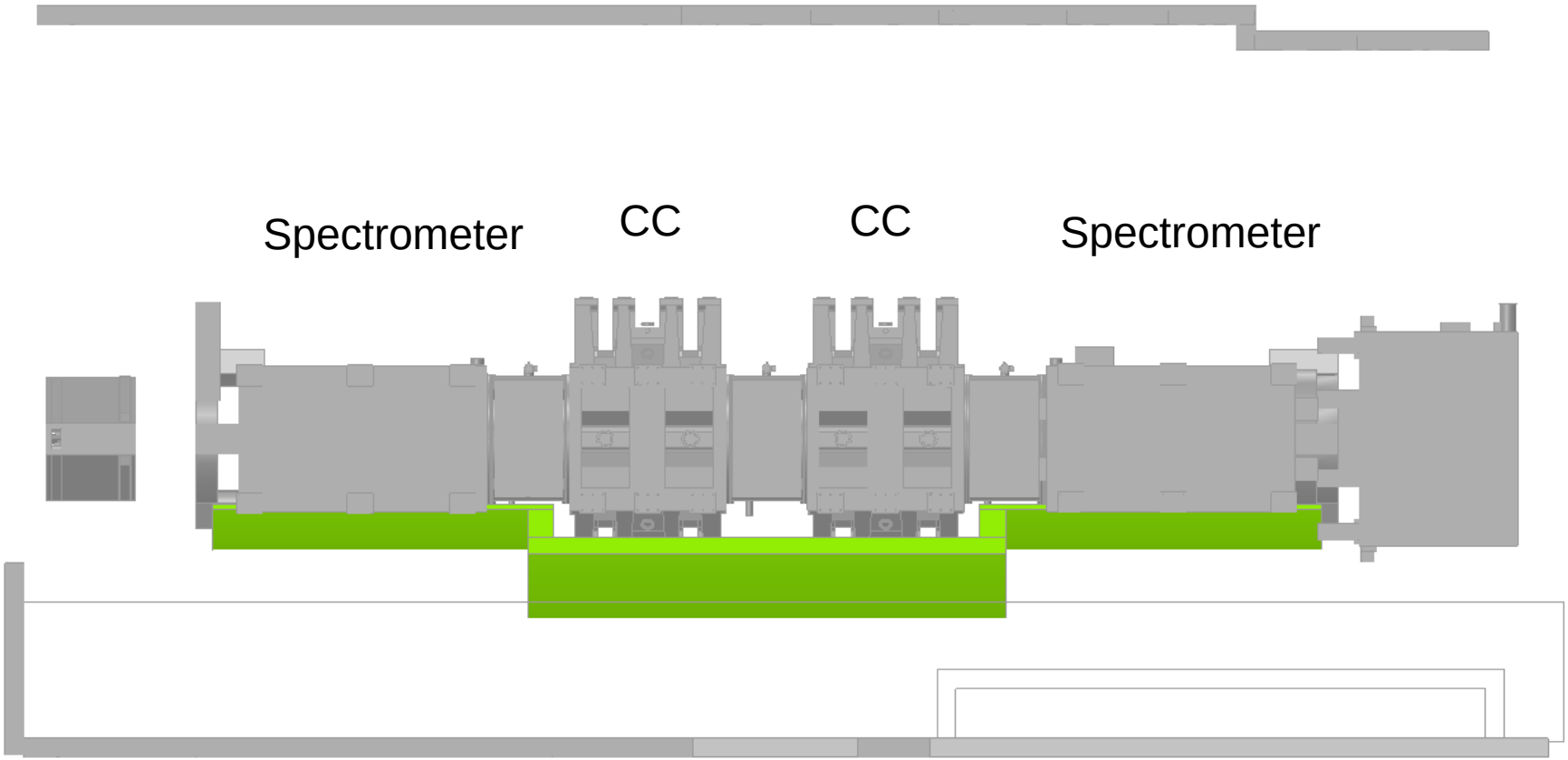


Peak: 3 mT
Average: 1.5 mT?

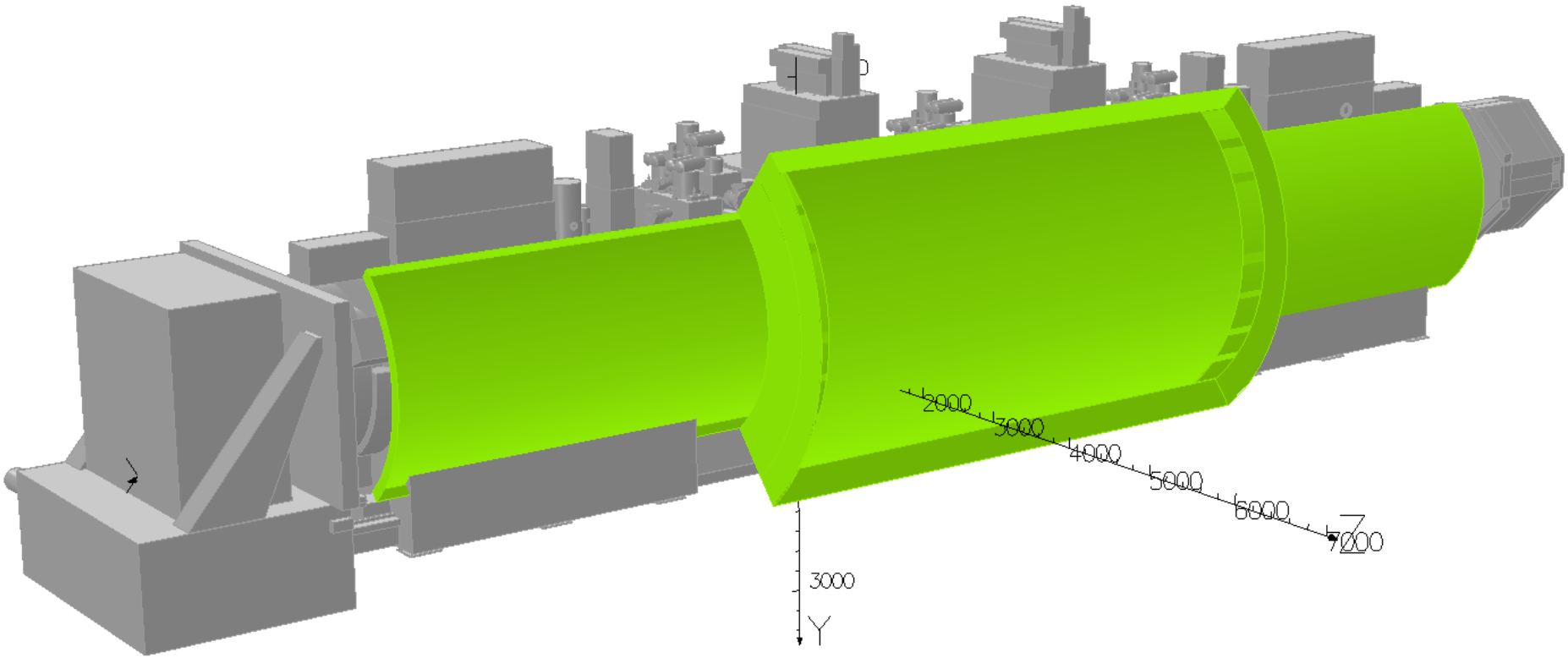
Opera

r=2.5m

Geometry

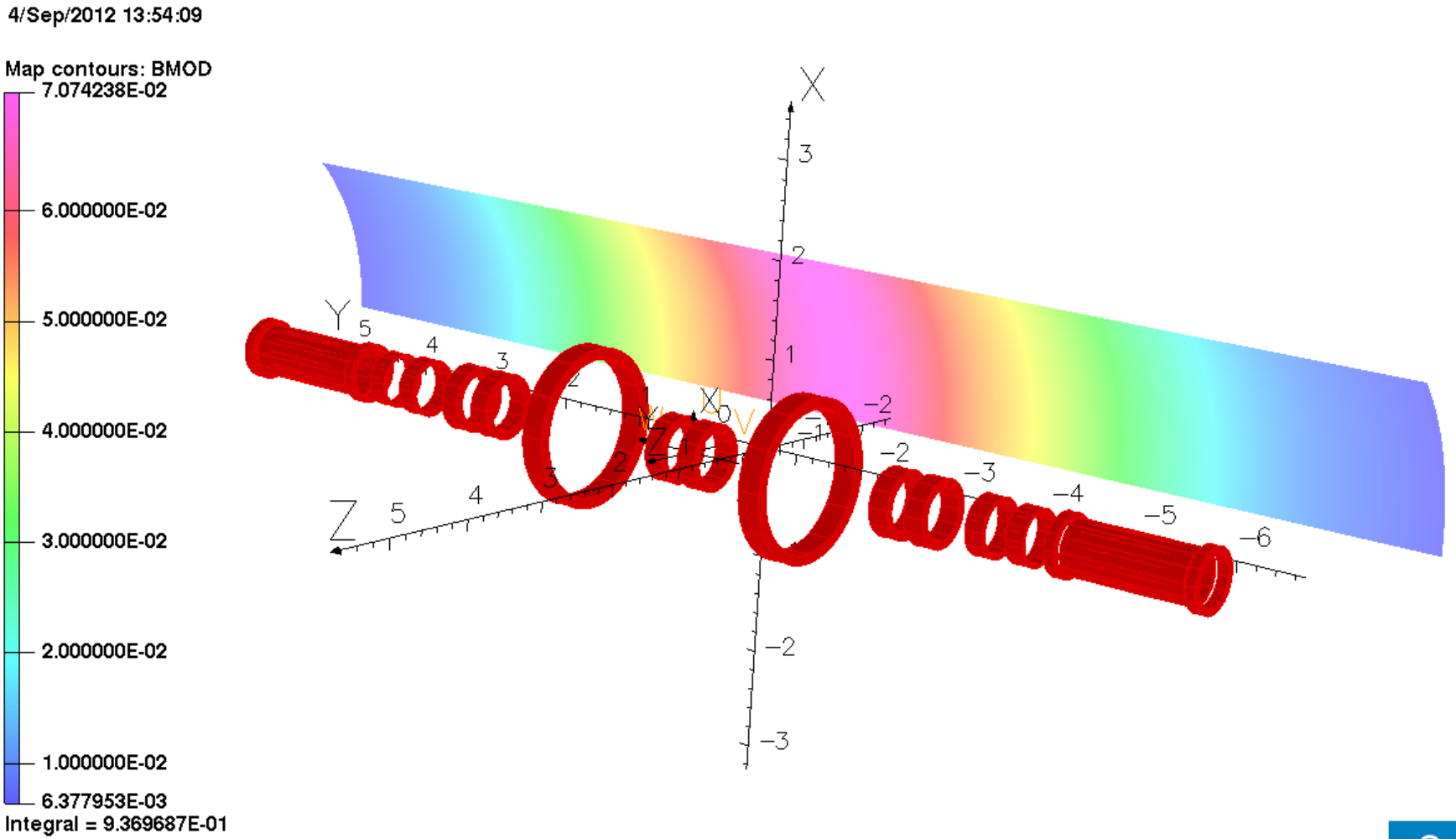


Geometry

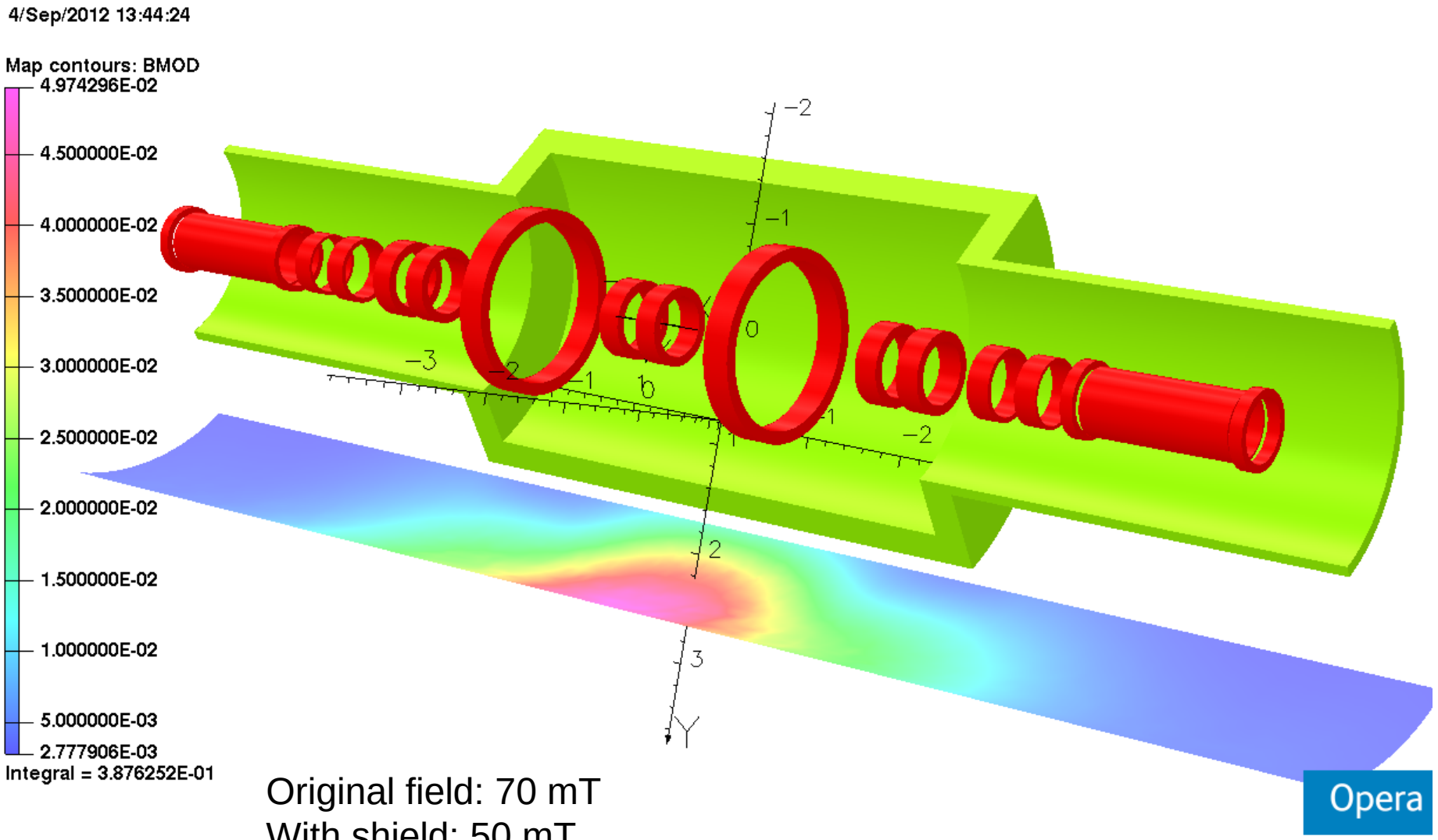


Outside faces removed

Stage VI, Flip 200 MeV

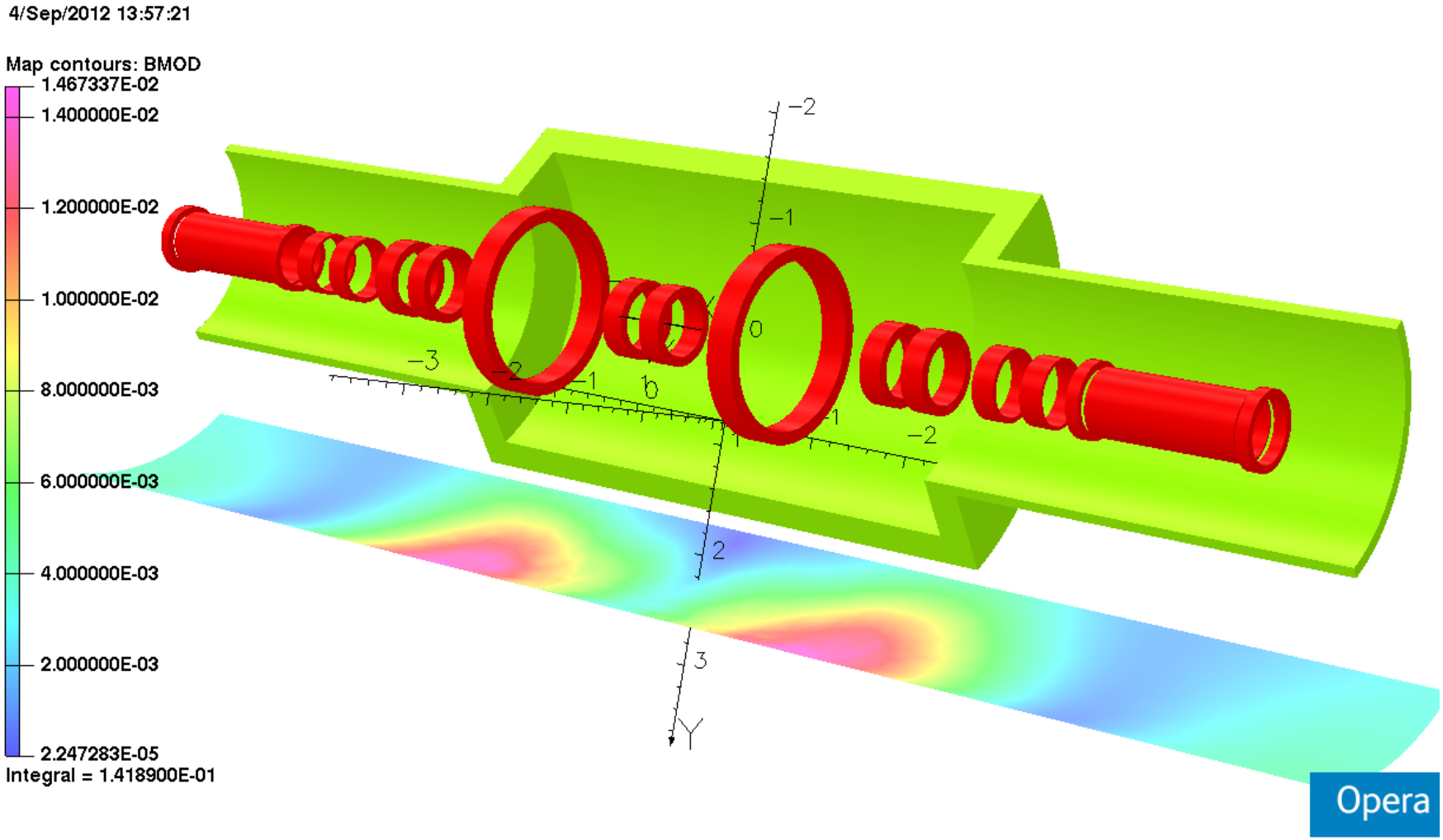


Stage VI, Flip 200 MeV



Original field: 70 mT
With shield: 50 mT

Stage VI, Solenoid 200 MeV



Original field: 32 mT
With shield: 15 mT

Conclusion

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- Stage VI can also be shielded
  - requires more iron
  - radial thickness: 0.3 m near coupling coils
  - total volume (both halfs): 16 m^3 (130 tons)
  - Force: 400 kN (200 MeV flip mode)
- Areas not covered by shield: stray field slightly better in comparison to no shield situation
- Further work
  - optimize thickness?
  - integration?