SoLID

Radiation and Activation with SoLID

Outline

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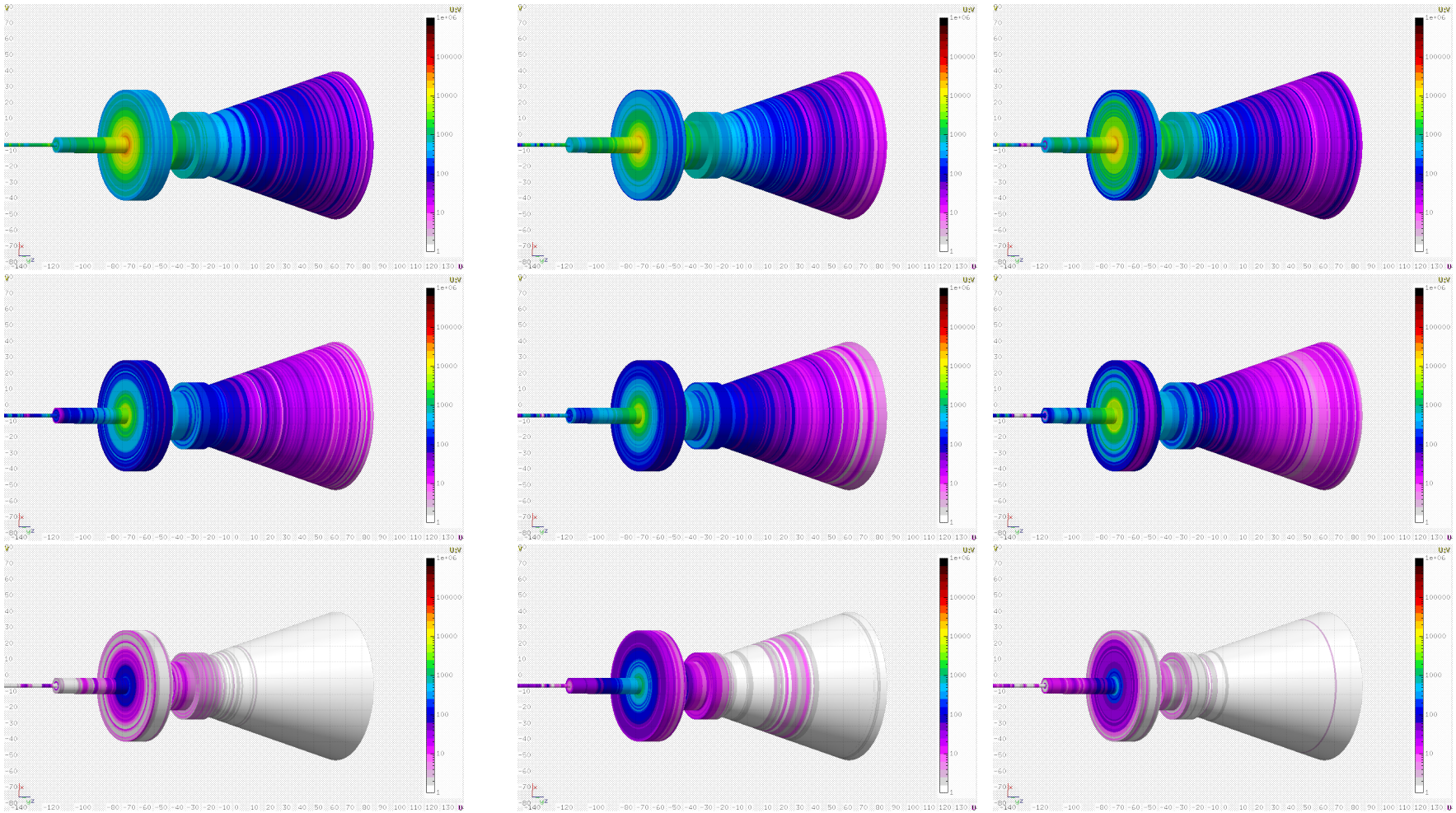
Director's Review: Suggestions

Areas of further investigation

- Baffle material optimization
- More detailed study on radiation on magnet's coil
- More detailed on impact of radiation in the Hall with focus on areas where electronics will be present
- Complete the set of possible configurations

Baffle Activation

LEAD COPPER TUNGSTEN



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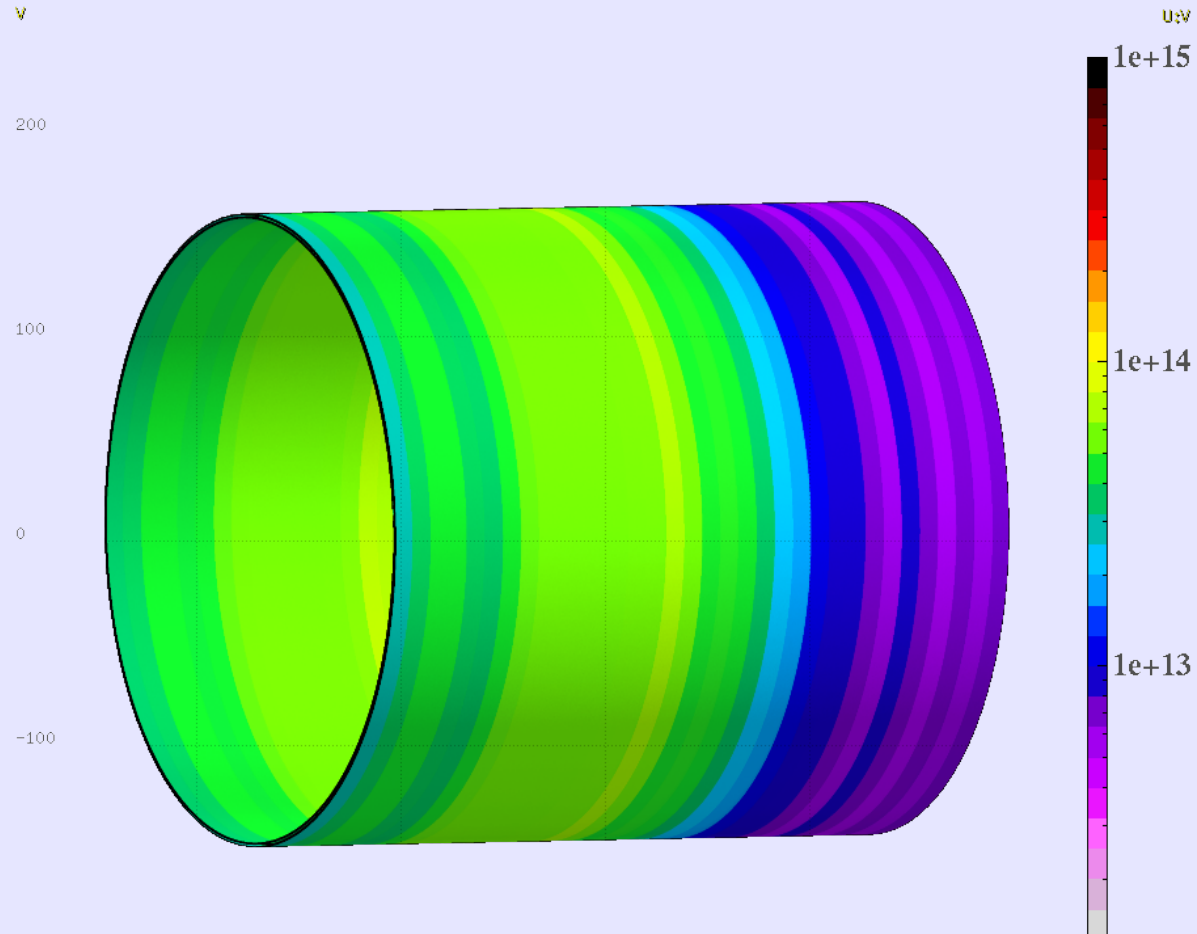
Lifetime on NbTi superconductor carried by SoLID

Expected PVDIS neutron fluence $\frac{N}{cm^2}(E > 1MeV)$

Dose for 2000h at $100\mu A$ (Flux on coils)



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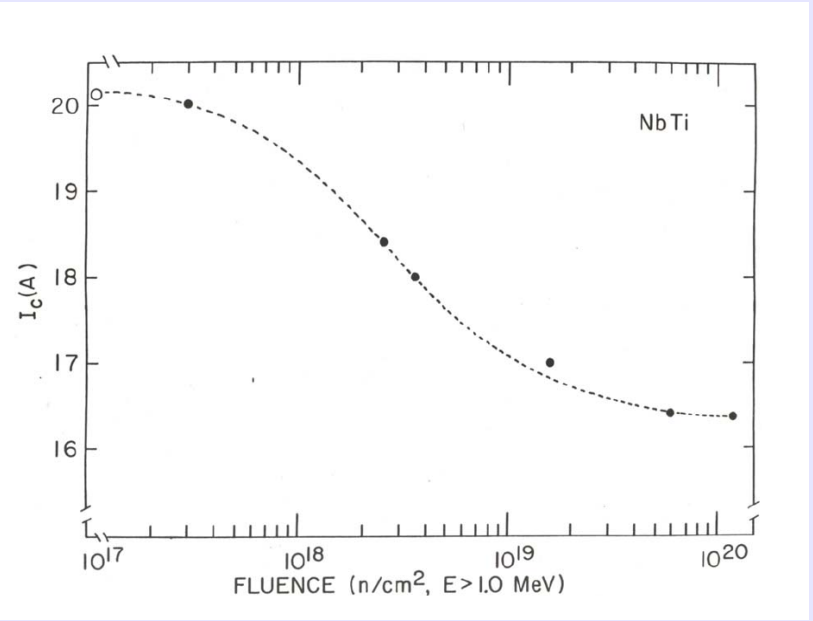
Dose



- A reduction of $\sim 20\%$ in I_c is expected in the range $2x10^{17} < \frac{N}{cm^2} < 2x10^{19}$
- **The expected accumulated fluence for PVDIS is $< 10^{14} \frac{N}{cm^2}$**

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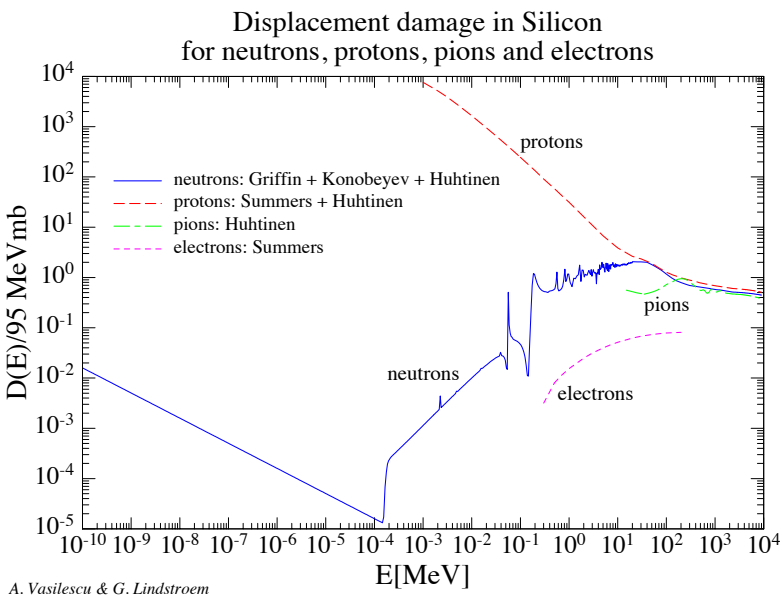
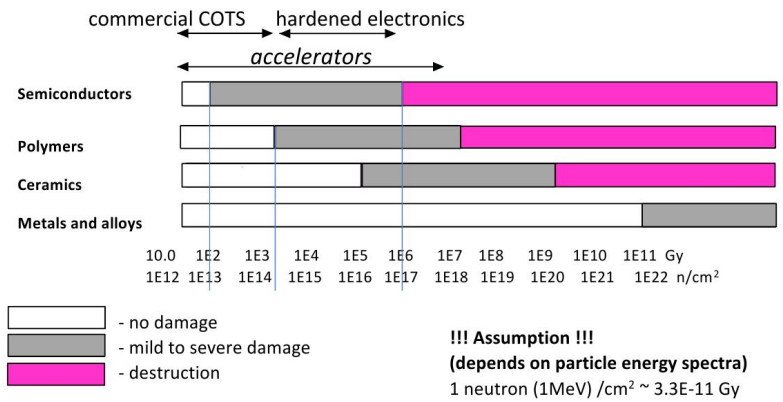
Radiation Estimates and Tolerance

Radiation Estimates



A. Vasilescu & G. Lindstroem

Tolerance (guideline)



!!! Assumption !!!
(depends on particle energy spectra)
1 neutron (1MeV) /cm² ~ 3.3E-11 Gy

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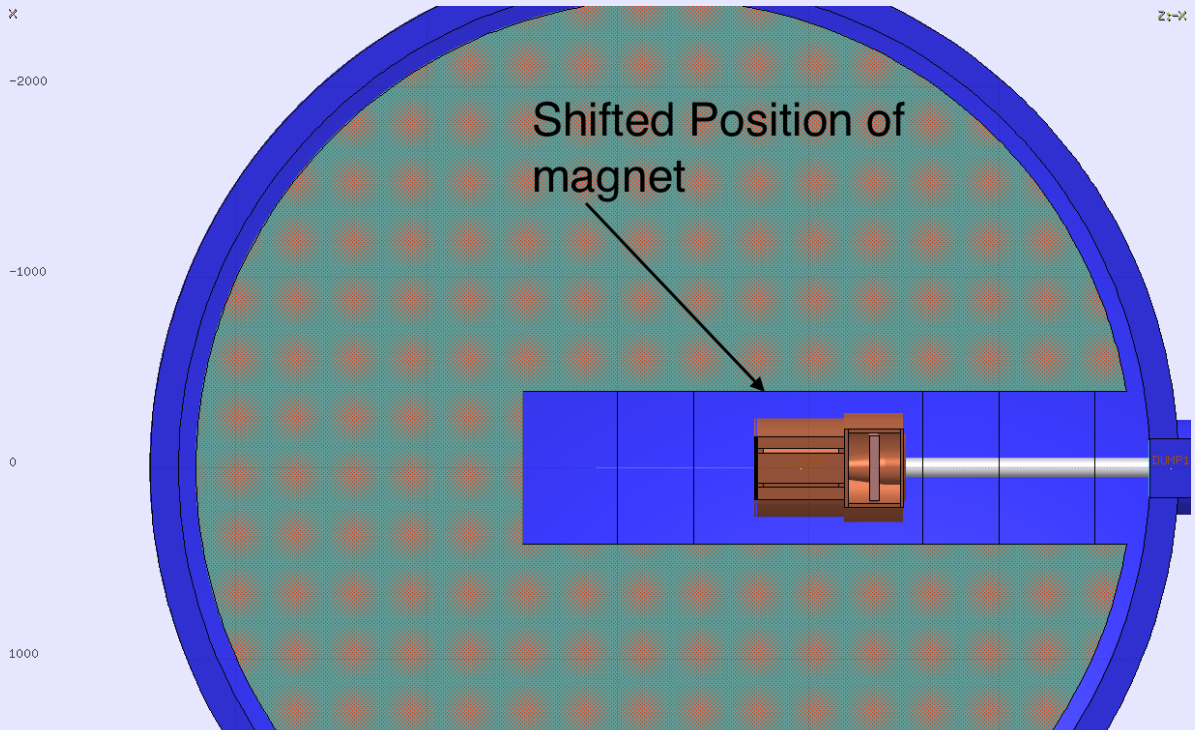
More detail on radiation in the Hall

Updating design

- Shifted position of the Magnet in the Hall
- Placed extra detector on a plane at 1m from the ground
- After simulation I will be able to scan the full Hall



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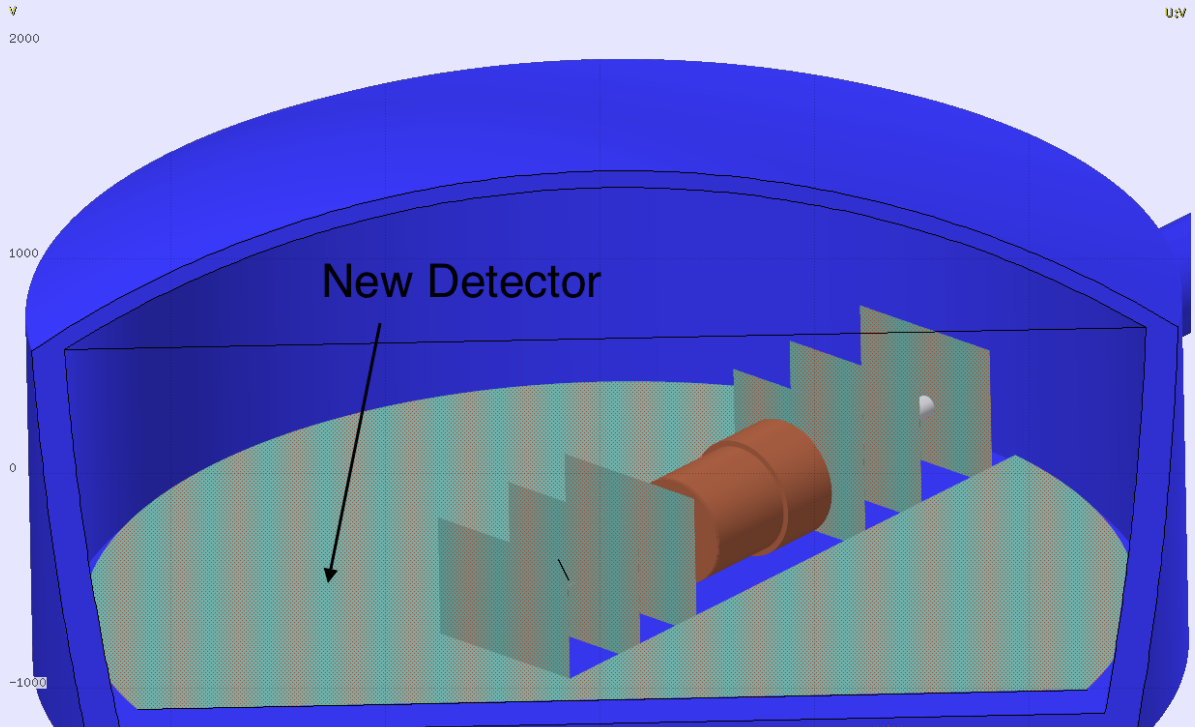
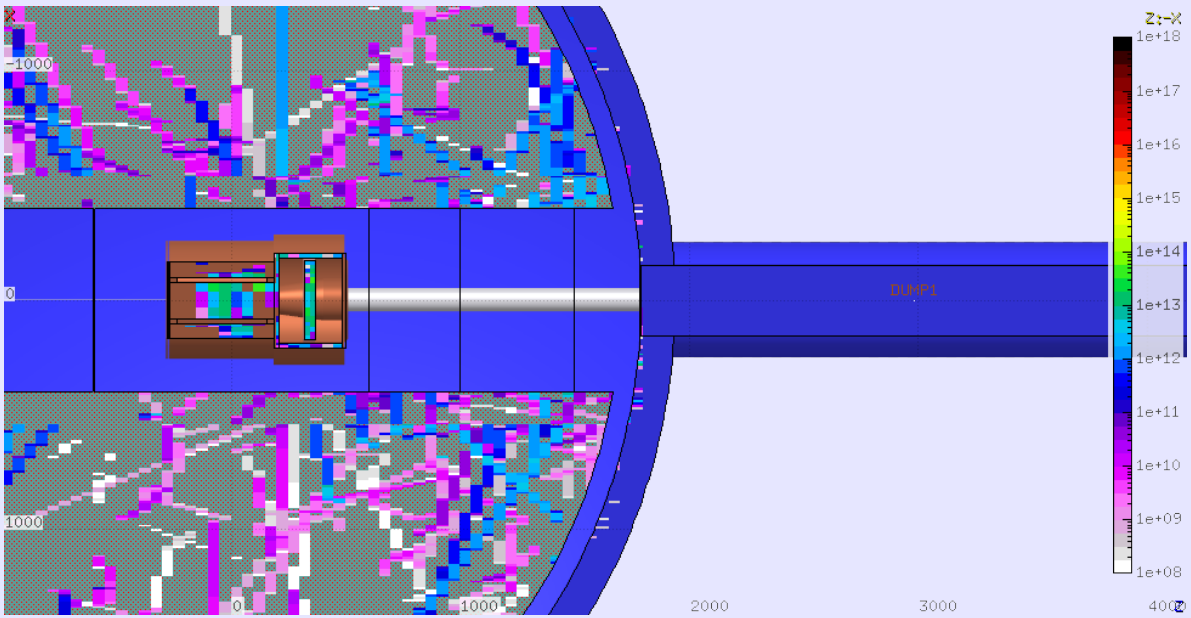


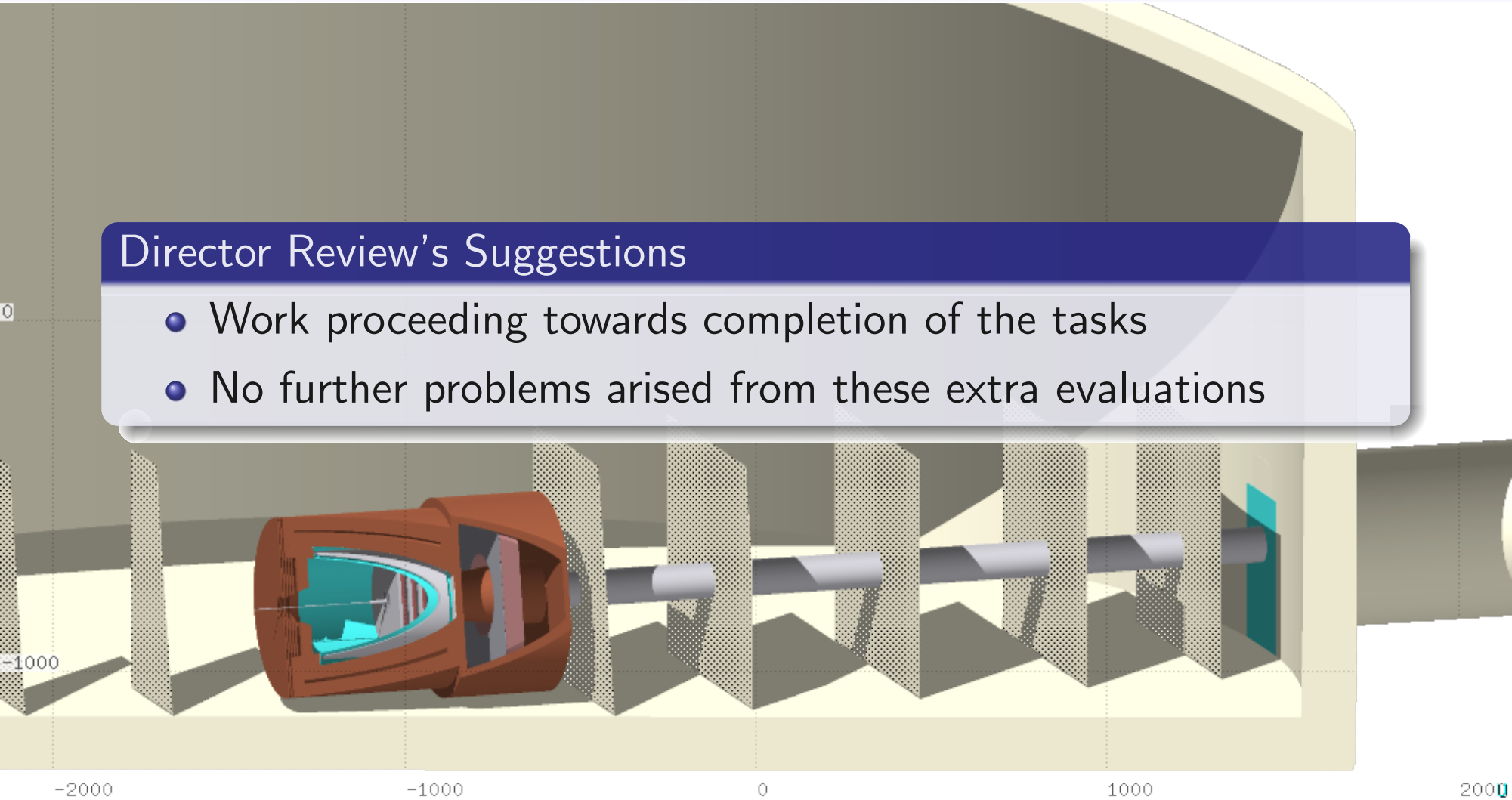
More detail on radiation in the Hall

Updating design

- FIRST RESULTS (couple of days on my machine)
- Need more statistic in the farm



Conclusions



Director Review's Suggestions

- Work proceeding towards completion of the tasks
- No further problems arised from these extra evaluations

Conclusions

Director Review's Suggestions

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- No further problems arised from these extra evaluations

Radiation in the Hall

- Optimal statistic will be available soon
- No expected problem from previous studies