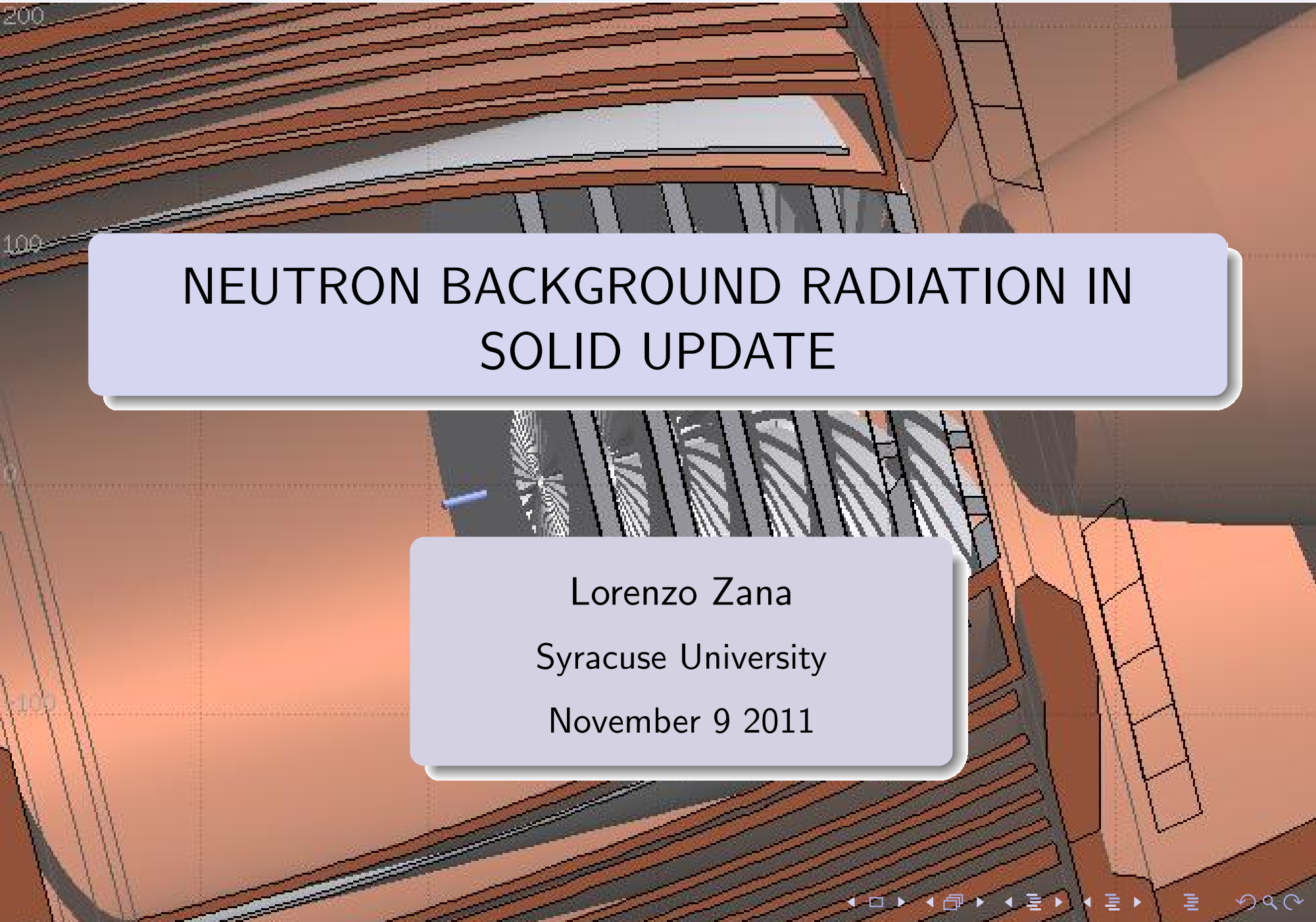


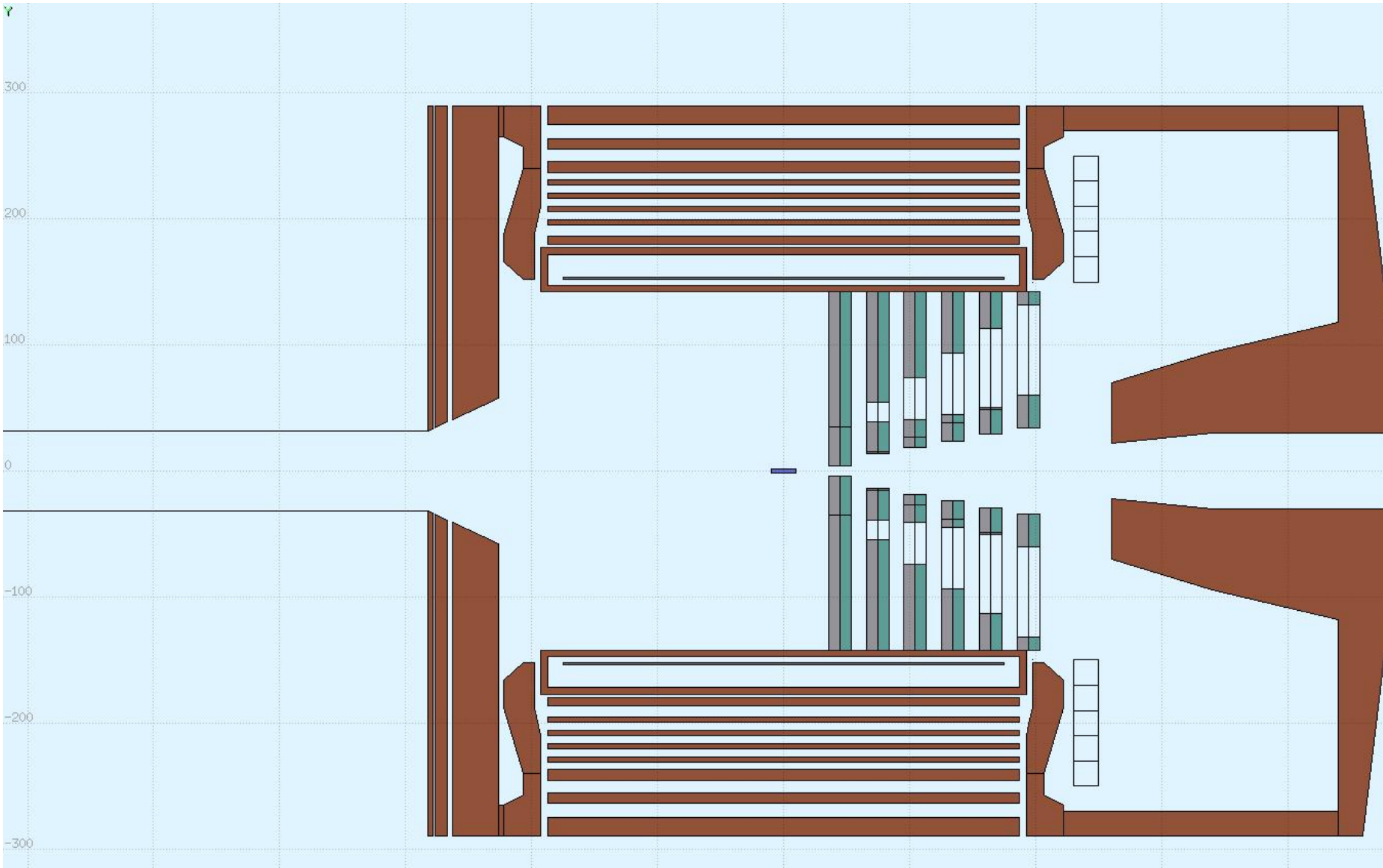
NEUTRON BACKGROUND RADIATION IN SOLID UPDATE

Lorenzo Zana

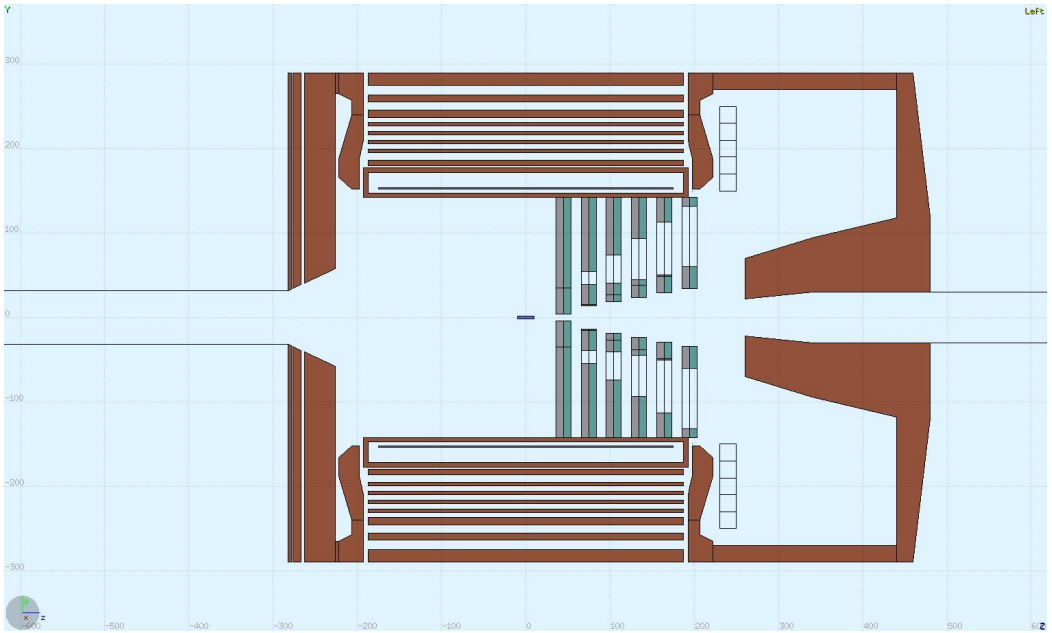
Syracuse University

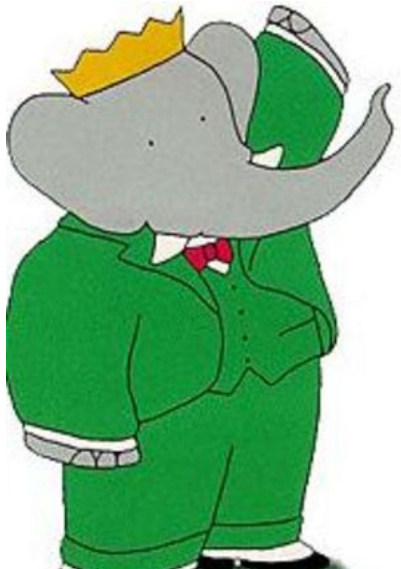
November 9 2011

Babar Solenoid design

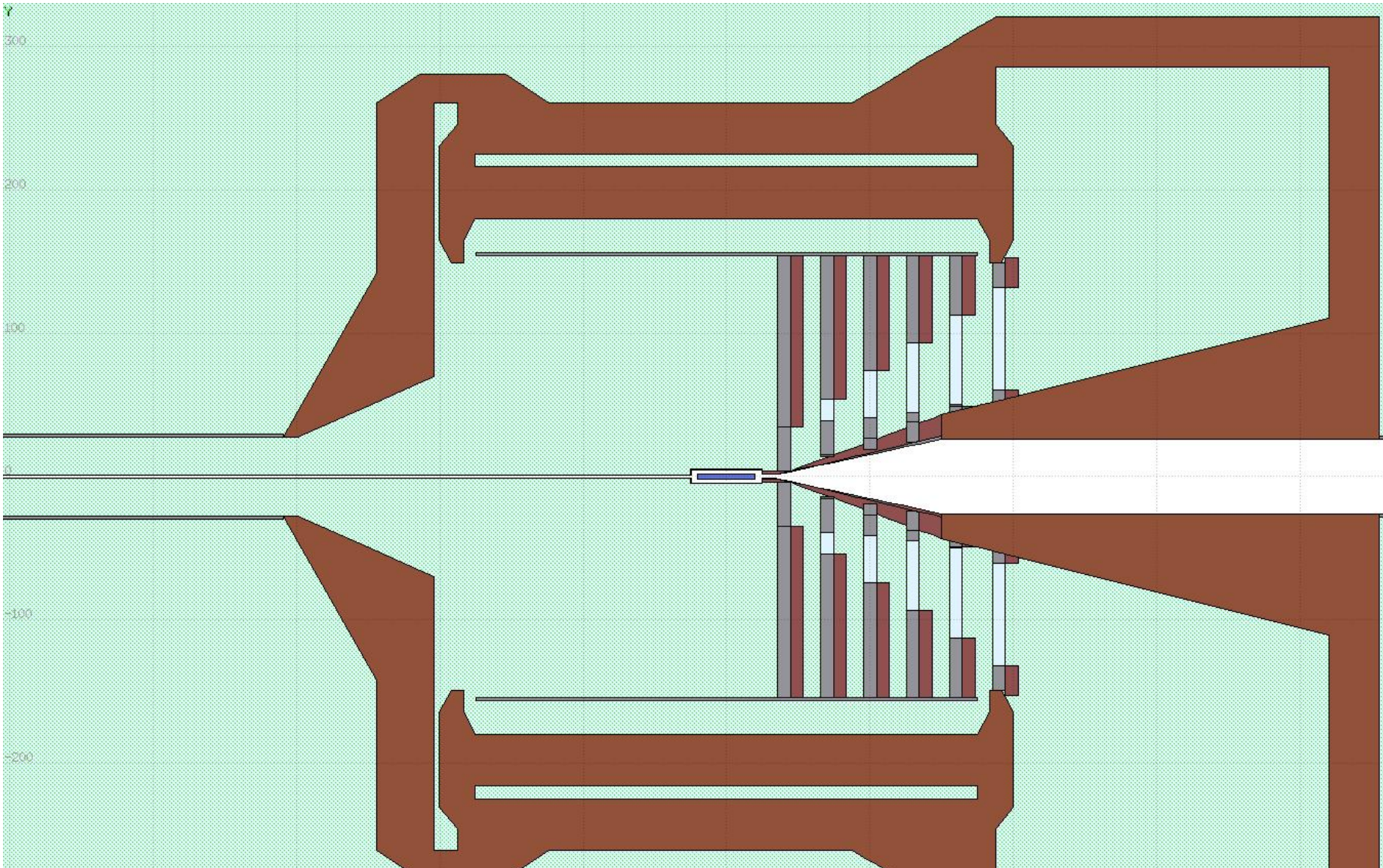


Babar Solenoid design

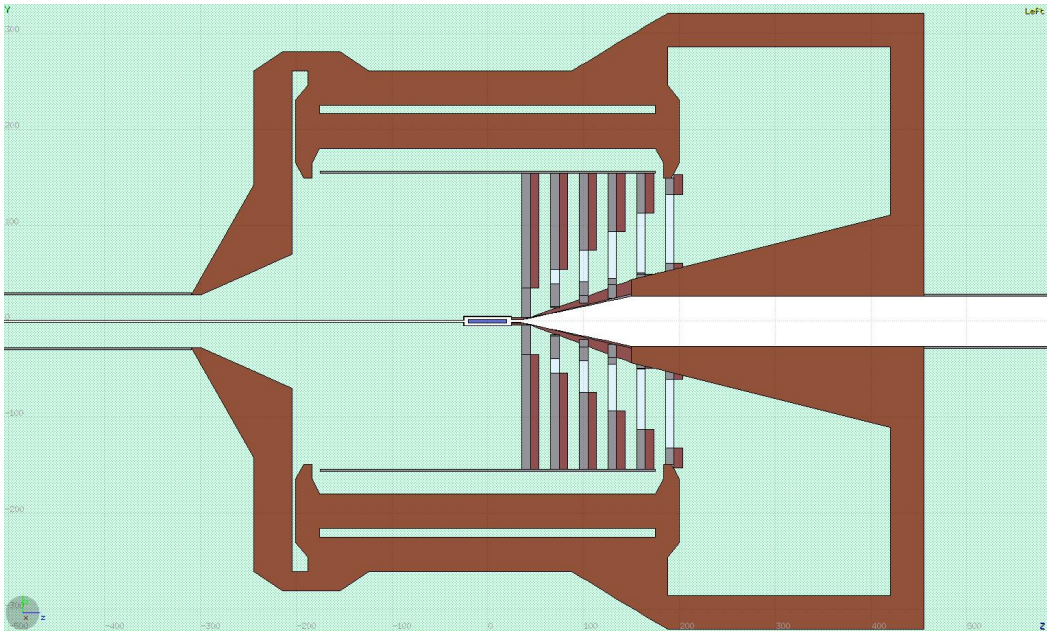




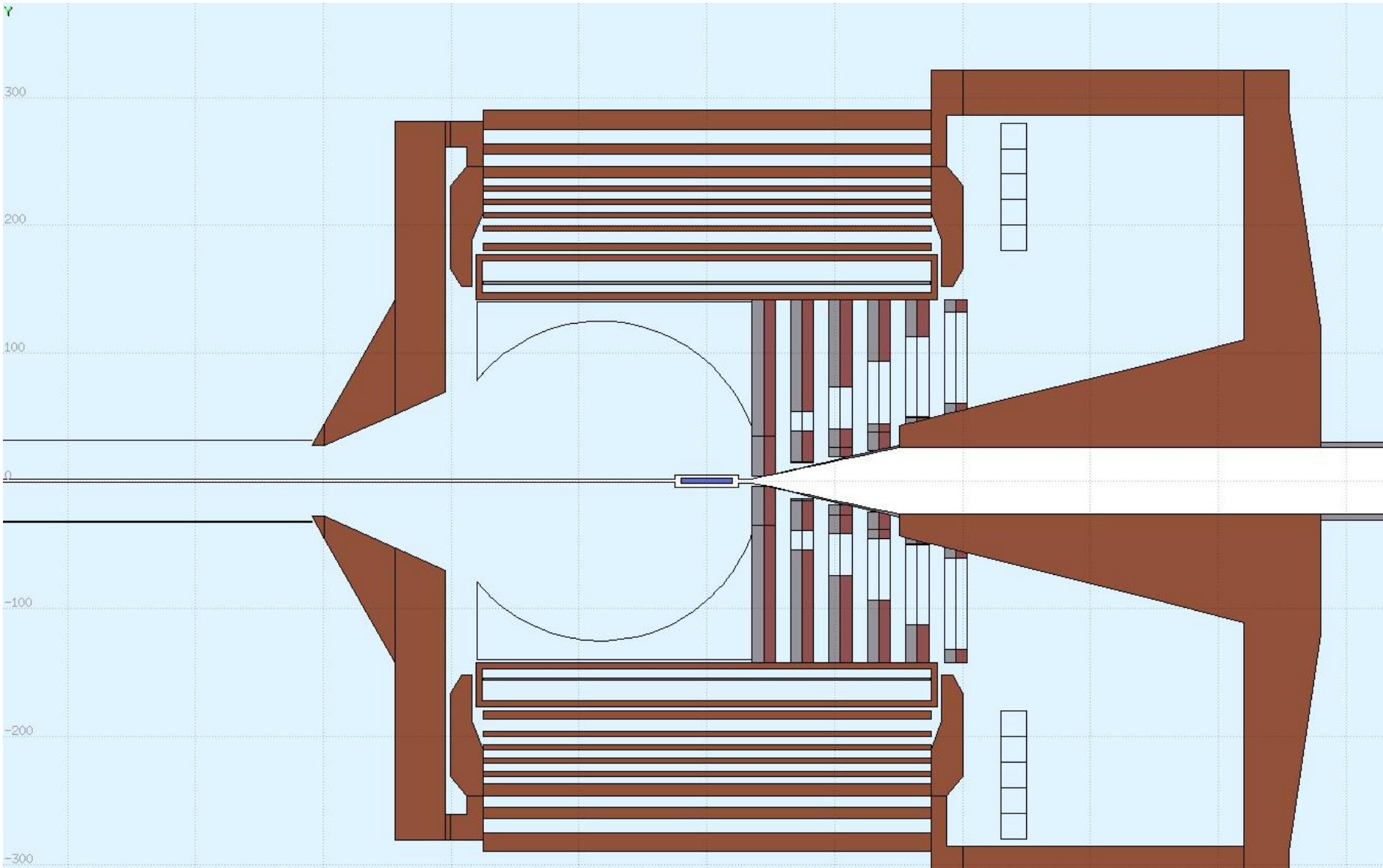
Cleo design



Cleo design



The birth of “BARCLEO”



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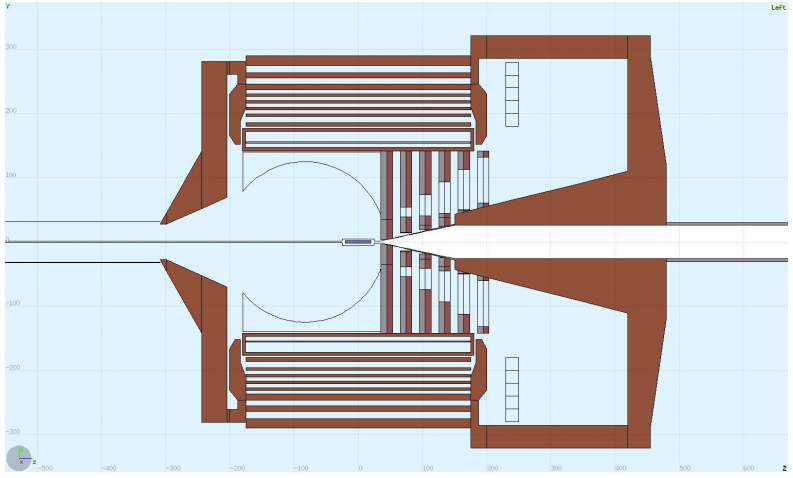

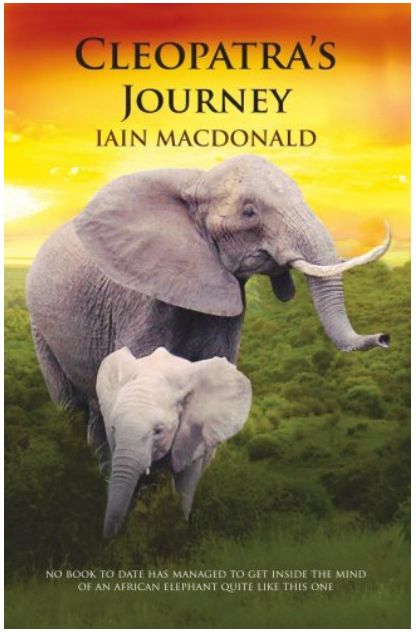

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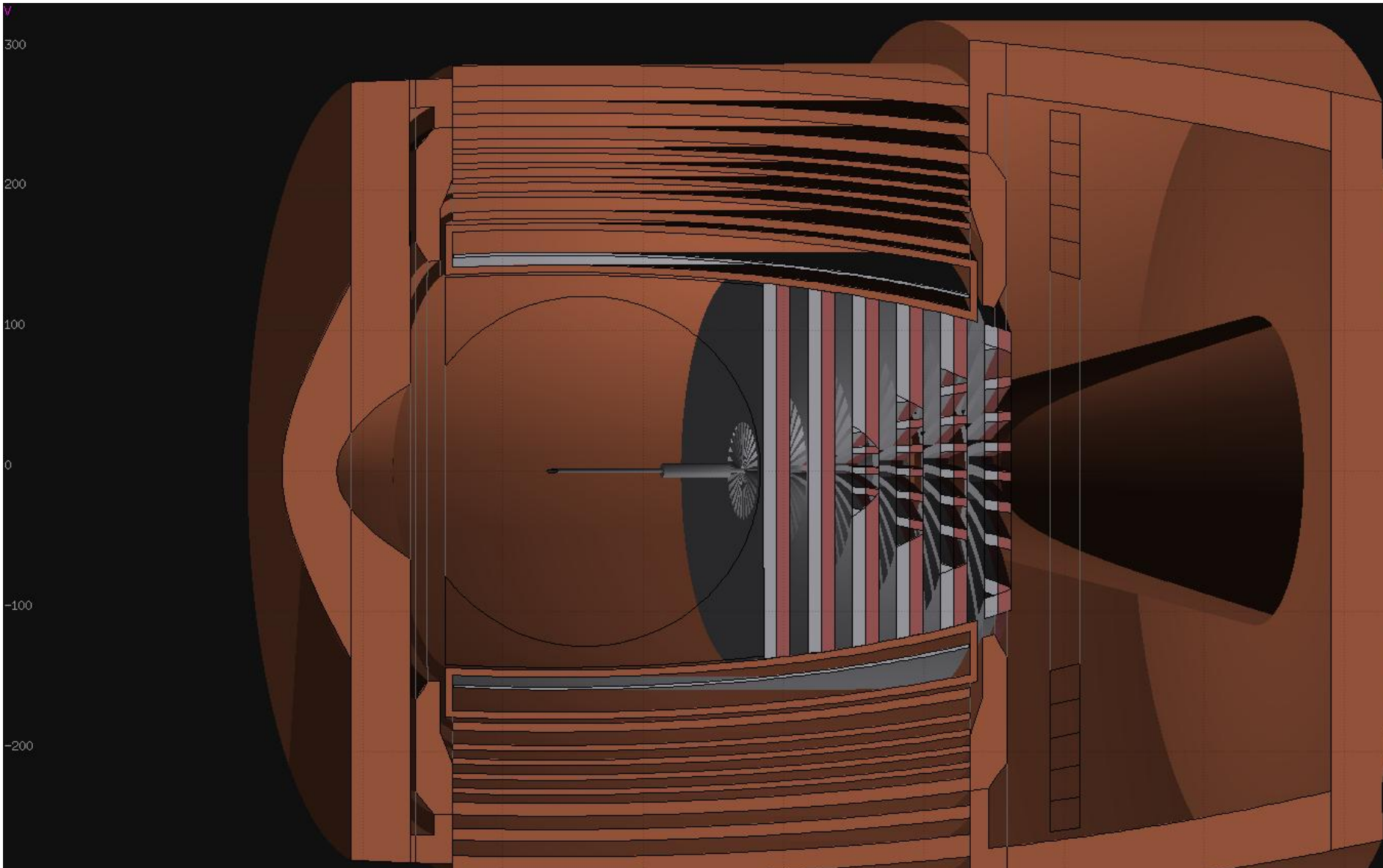
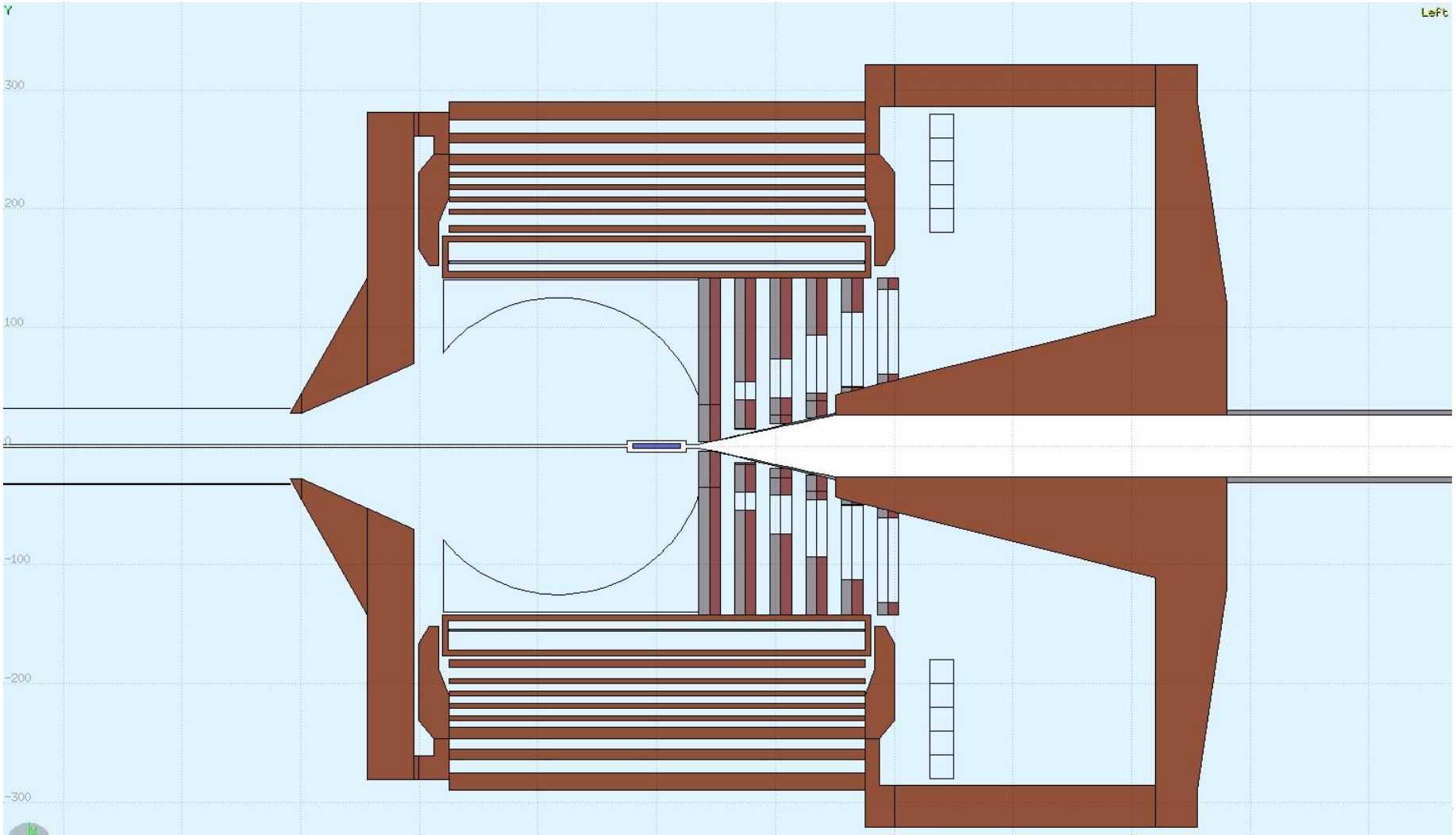


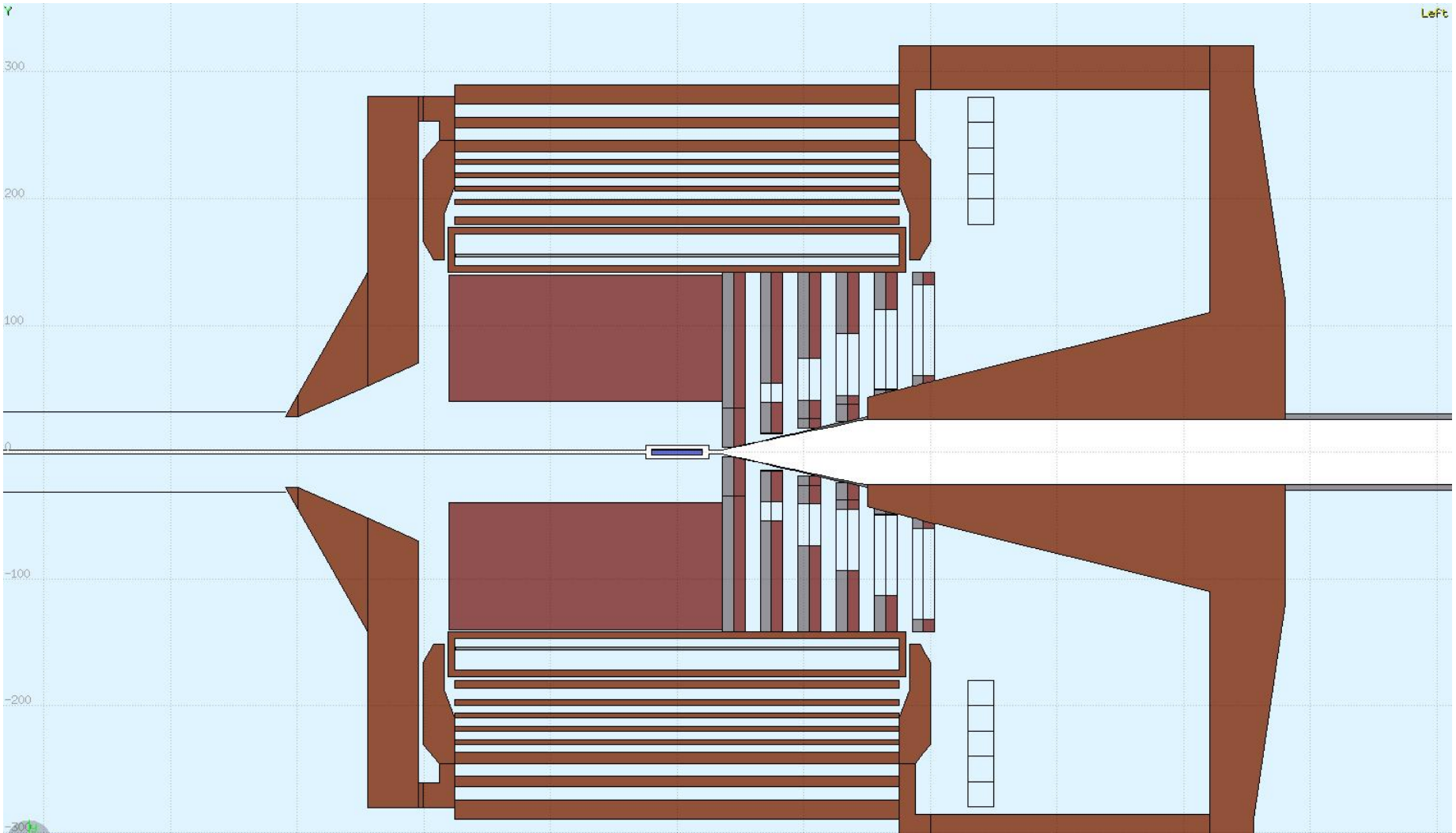
Different shieldings

SHIELD 1



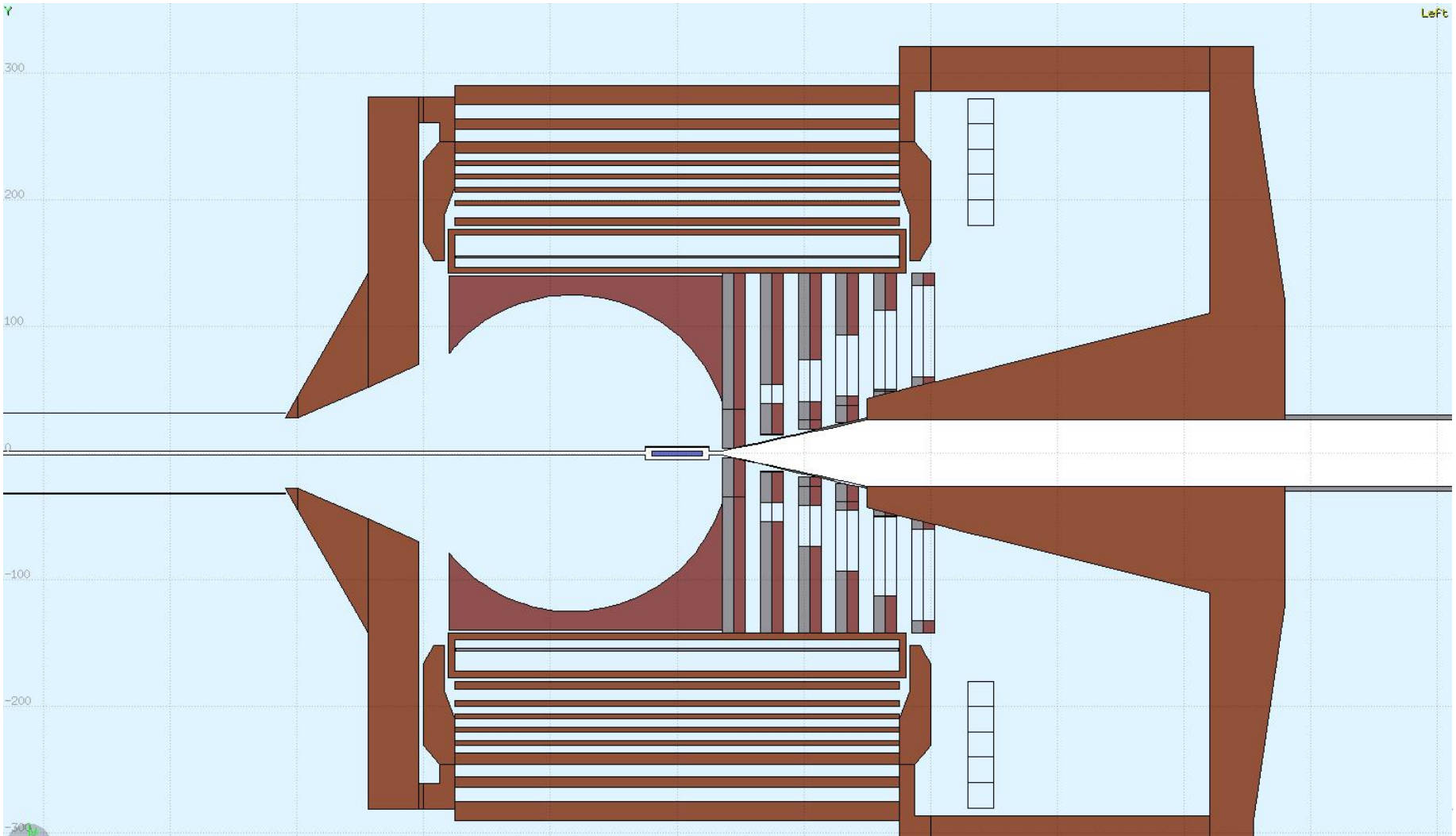
Different shieldings

SHIELD 2



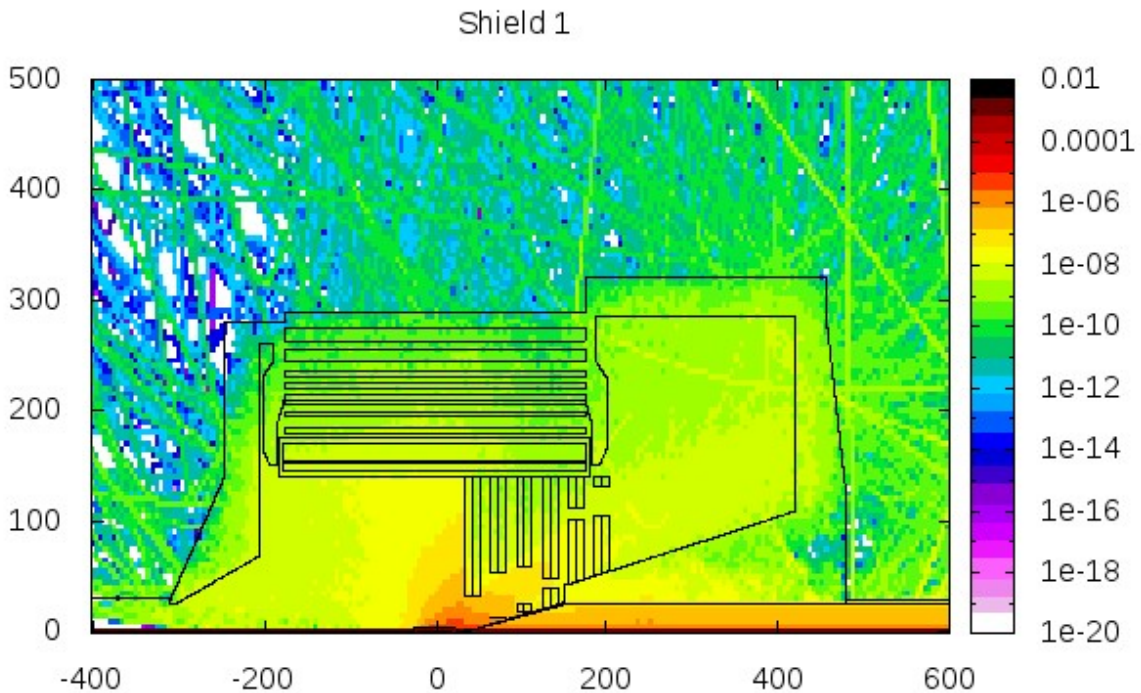
Different shieldings

SHIELD 3



1 MeV eq Silicon Fluence ALL PARTICLES

Total Fluence / incident e- = Flux (cm^{-2}) Silicon 1MeV eq.



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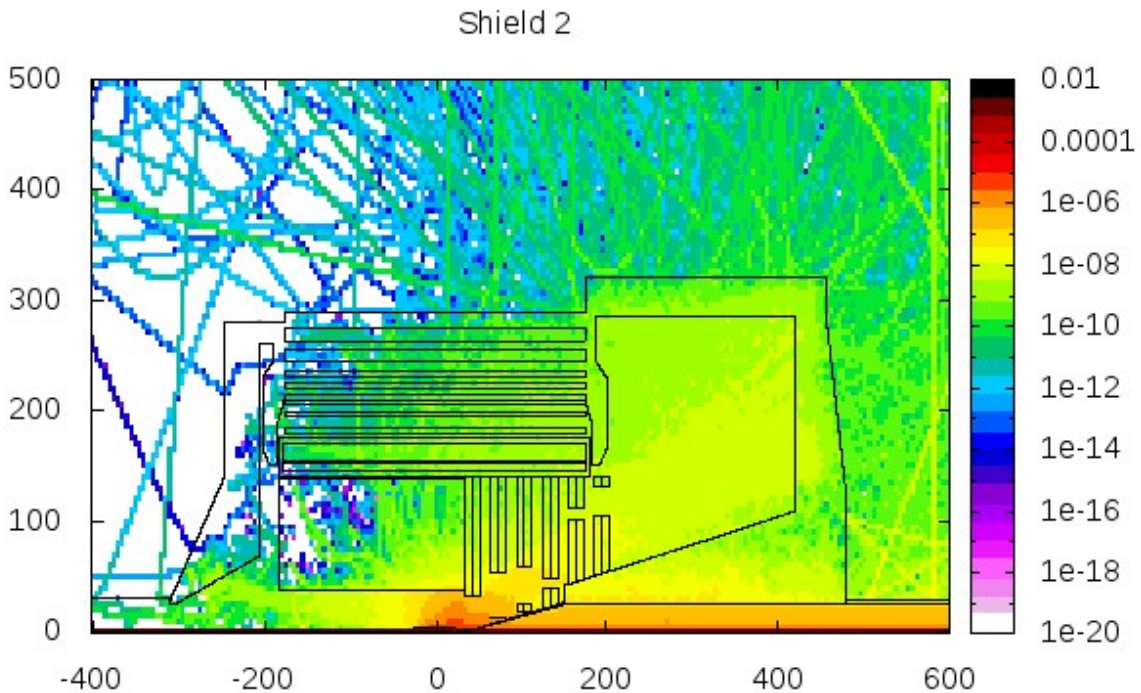

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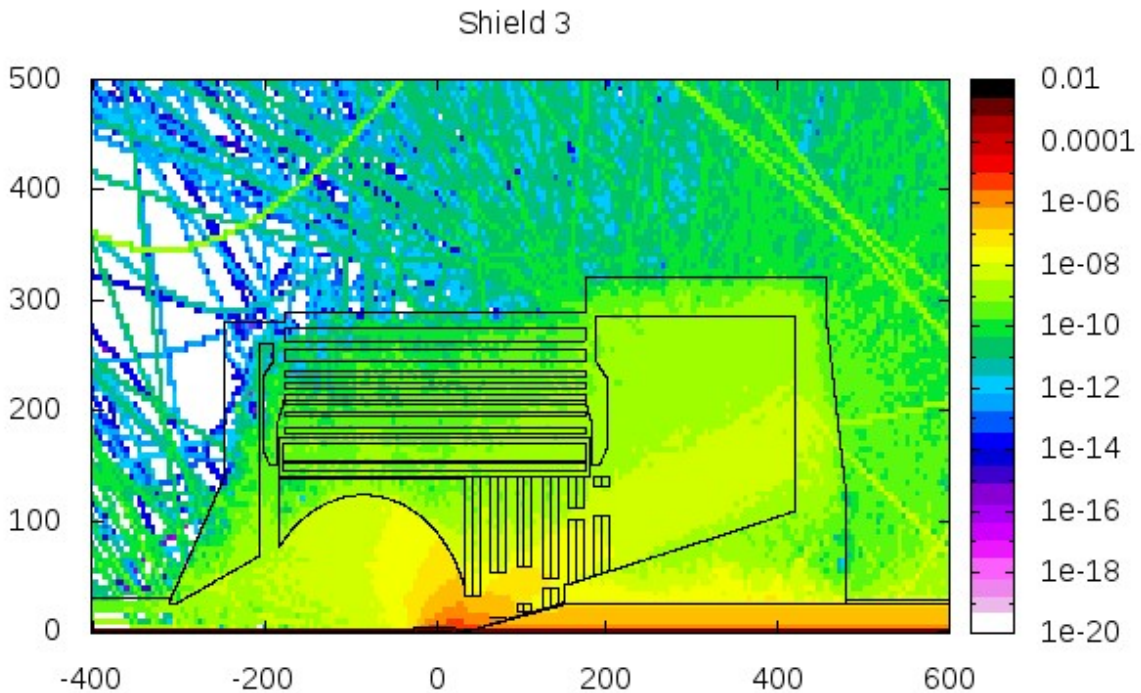
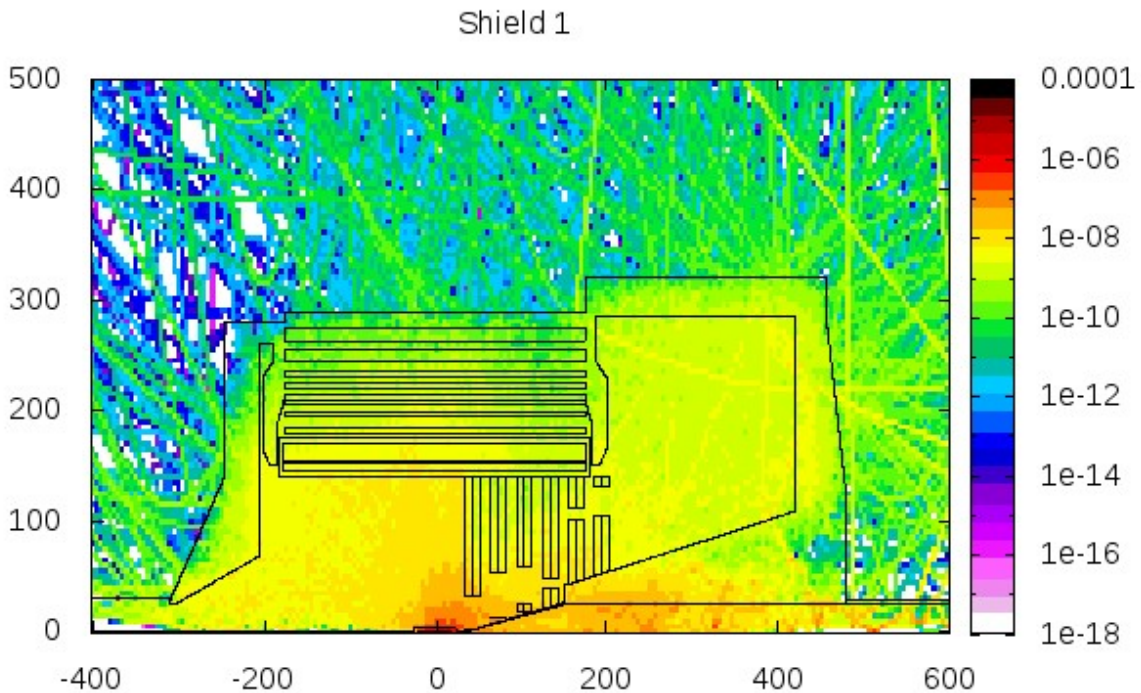


1 MeV eq Silicon Fluence NEUTRON

Neutron Fluence / incident e- = Flux (cm^{-2}) Silicon 1MeV eq.



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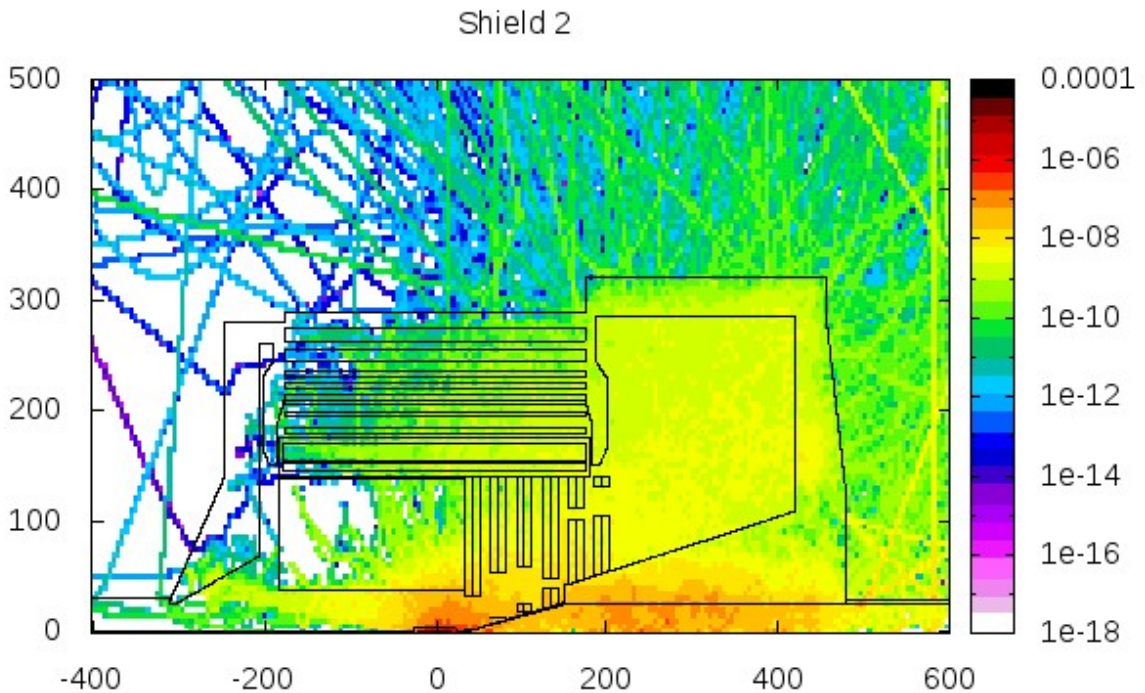

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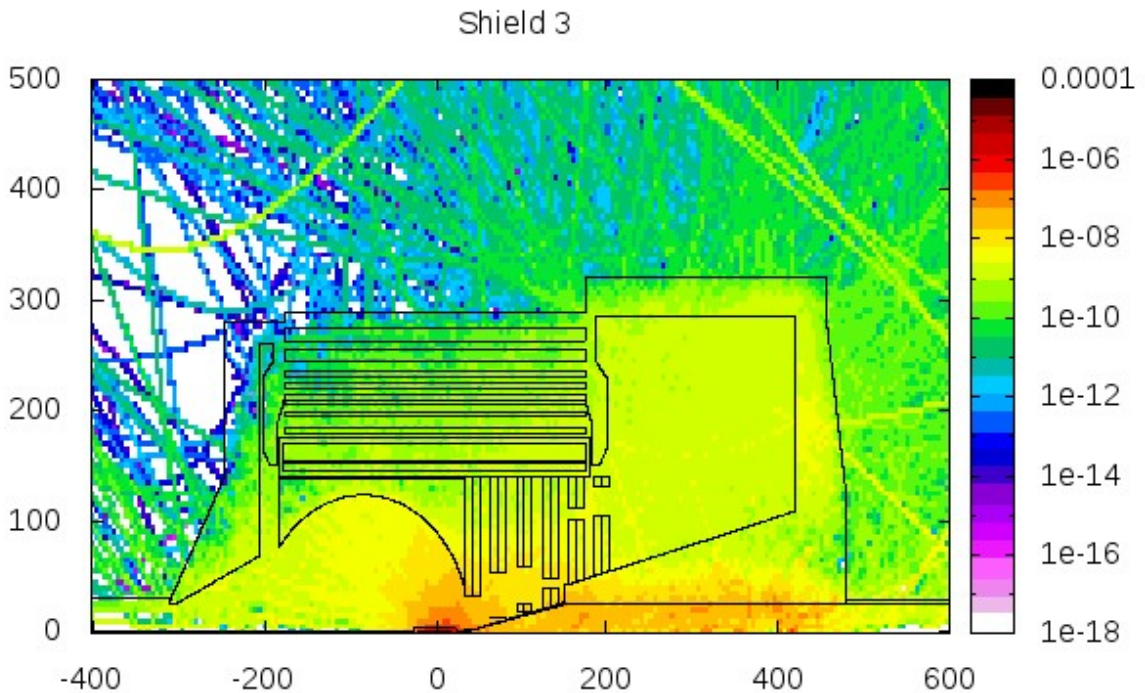
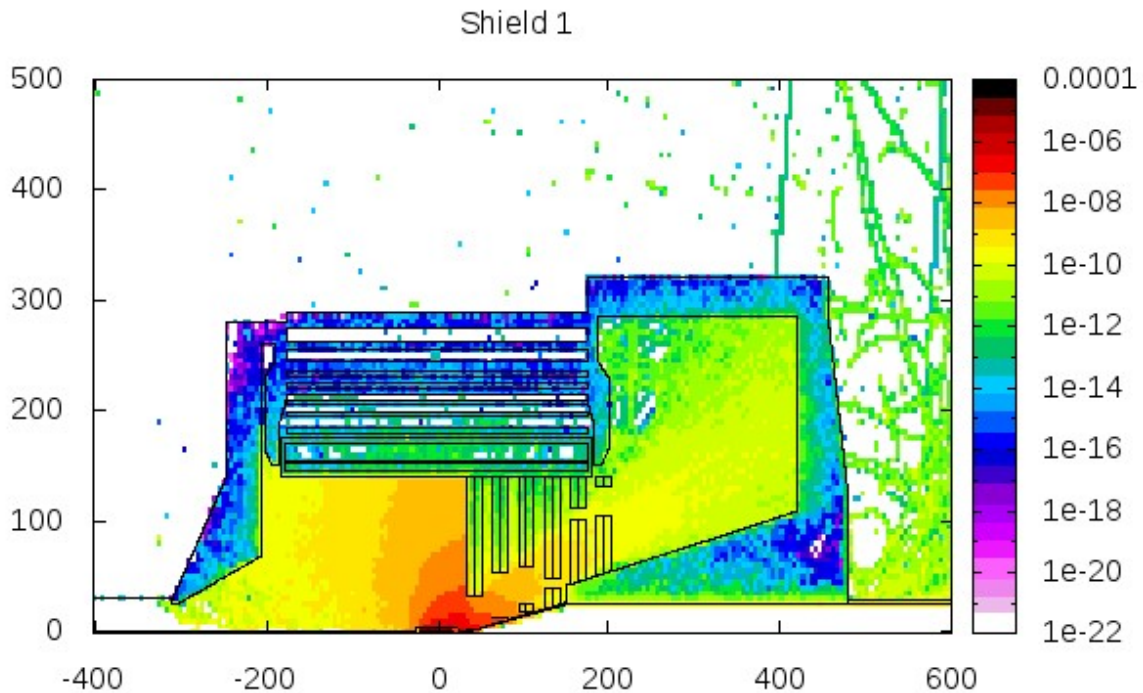


Dose

Dose (energy deposited per unit mass, GeV/g) / e-

$$1\frac{GeV}{g(e^-)} = 3.6x10^{11}\frac{rad}{h(1\mu A)}$$



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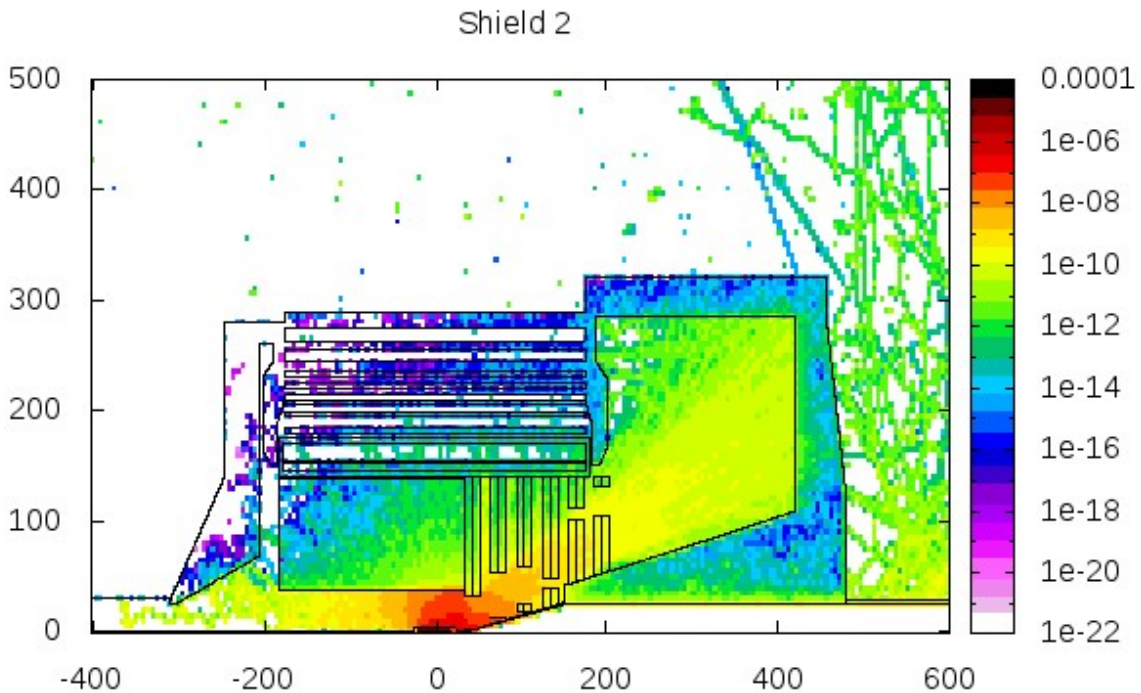

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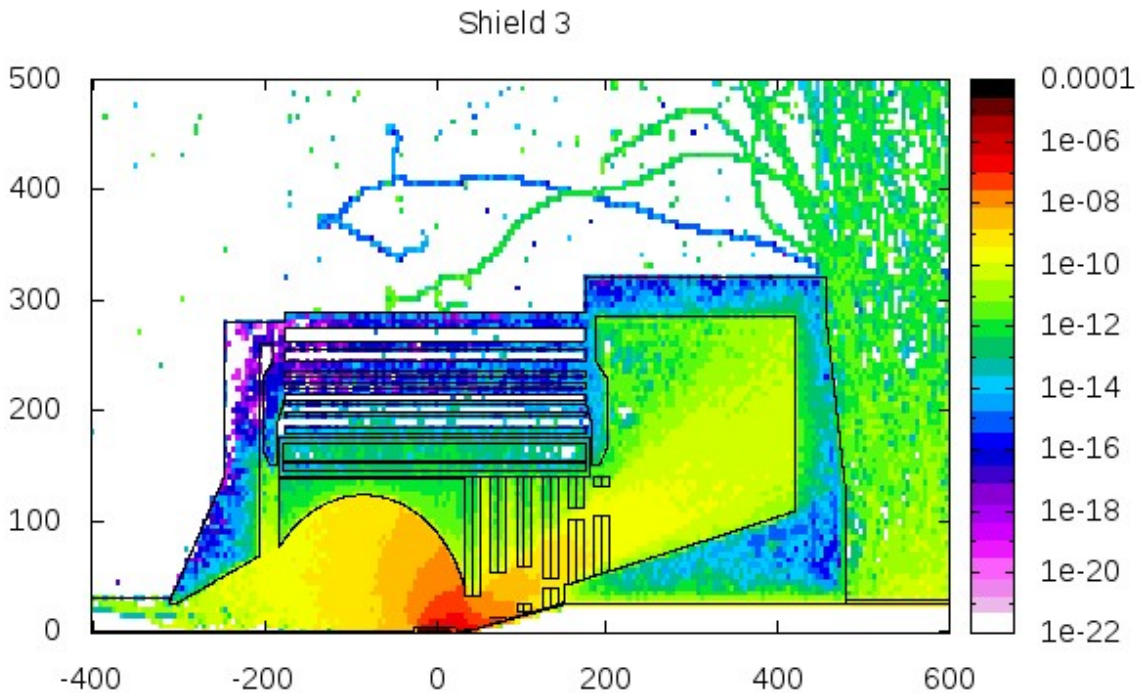
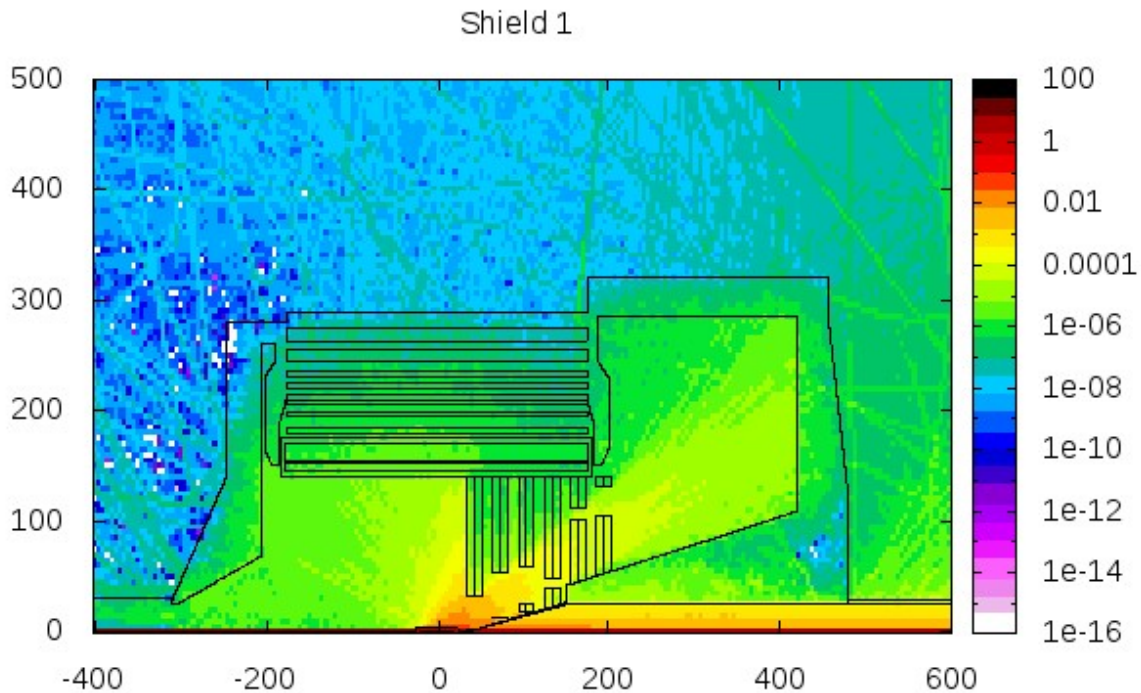


Dose equivalent

Dose equivalent rate expressed in pSv (1Sv = 100 rem) / e-

$$1\frac{pSv}{e^-} = 2.25x10^6\frac{rem}{h(1\mu A)}$$



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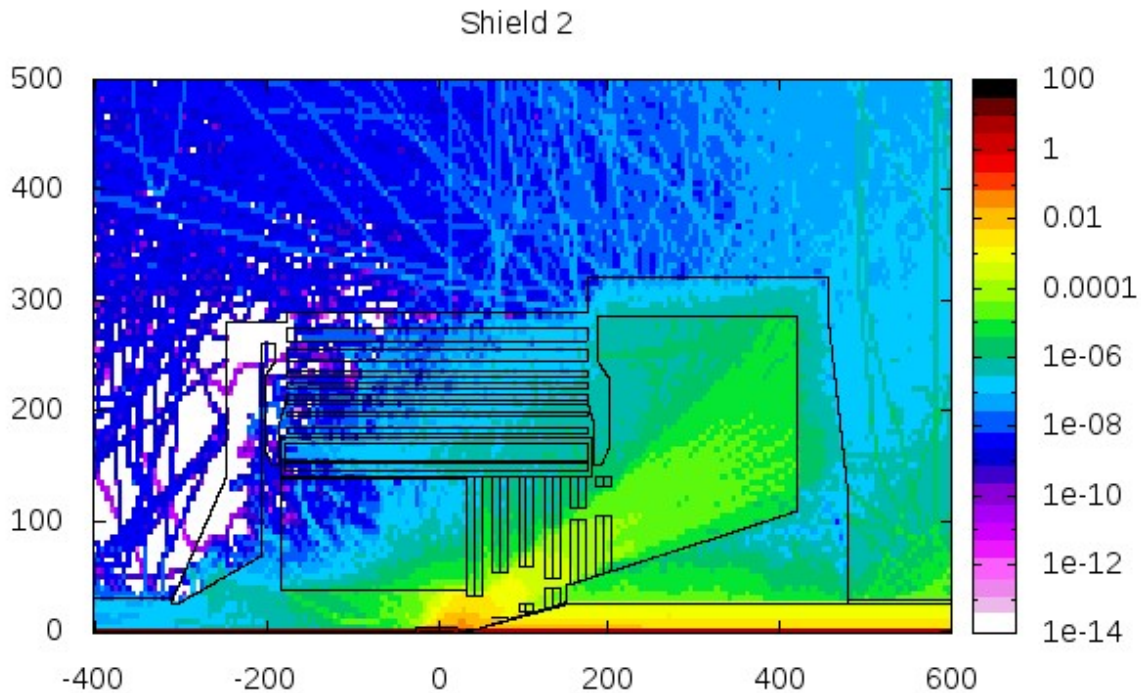

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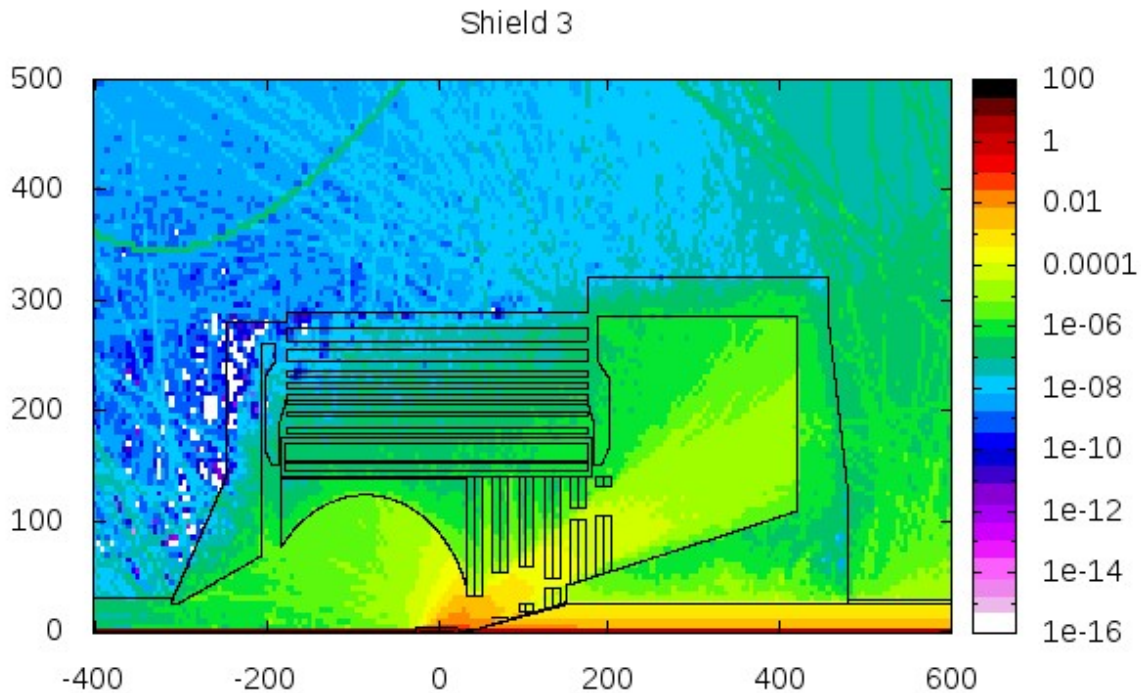
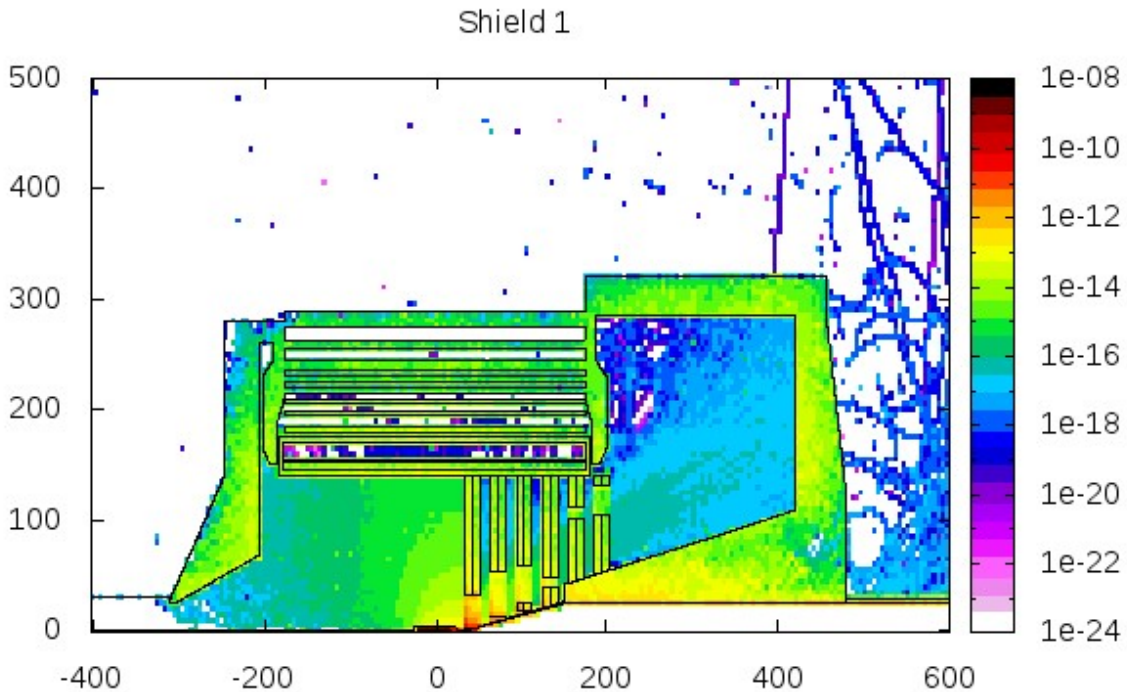


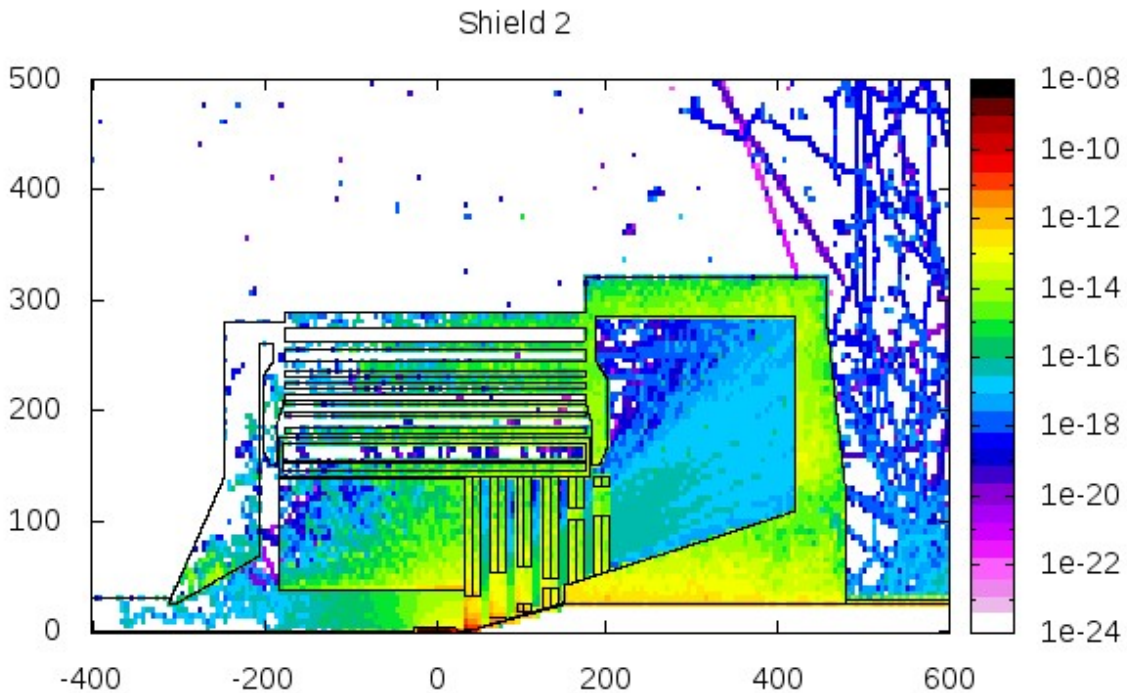
Displacement

Displacement rate expressed in GeV / e-



Displacement

Displacement rate expressed in GeV / e-



Displacement

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