

NEUTRON BACKGROUND RADIATION IN SOLID

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- 1 Geant 4 Neutron
- 2 Results Vertex Geant4 Neutron
- 3 Shielding Strategy

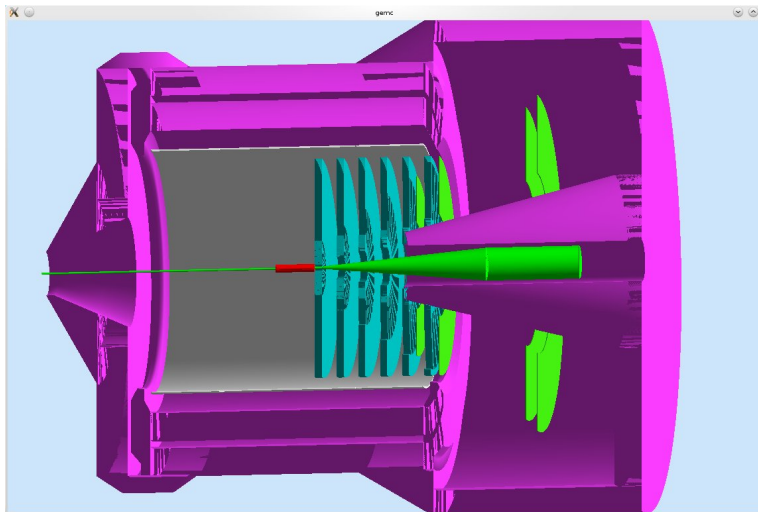
CLEO Design updated

Updated CLEO design for baffles

- Removed the “magnetic fin”
- Changed the baffle design to avoid superposition with the new design of the magnet
- Working and good enough for comparisons with FLUKA results
- Geant4 easier for vertex reconstruction of particle hits
- UPDATE from thirsday on last part

CLEO Design updated

UPDATED GEANT4 CLEO

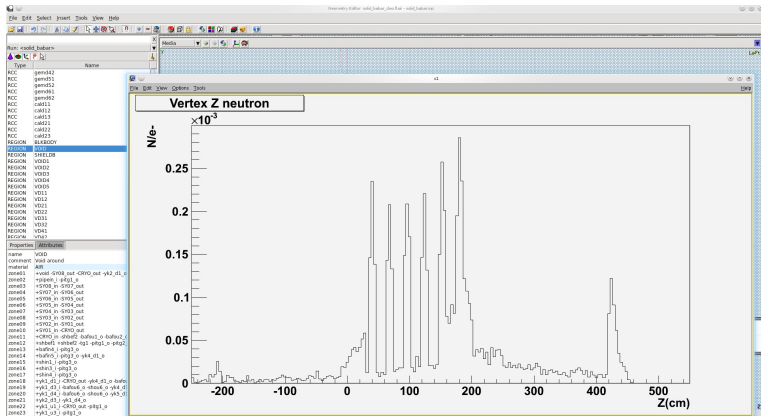


CLEO design



Neutron Origin Vertex on gems (Z)

Neutron Origin Vertex on gems (Z)

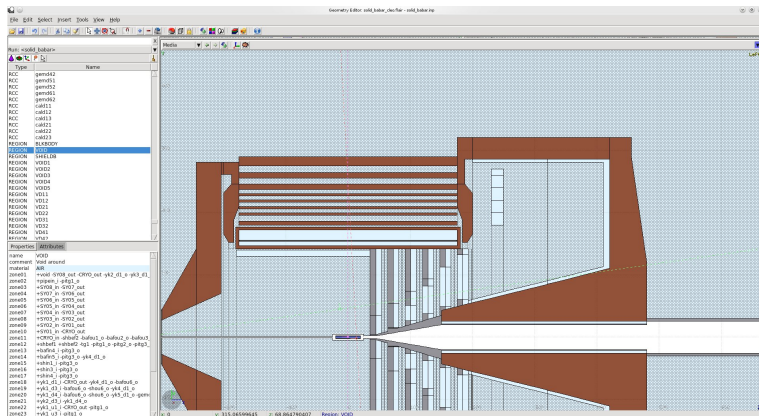


Neutron Origin Vertex on gems (Z) Position



Neutron Origin Vertex on gems (2D)

CLEO design

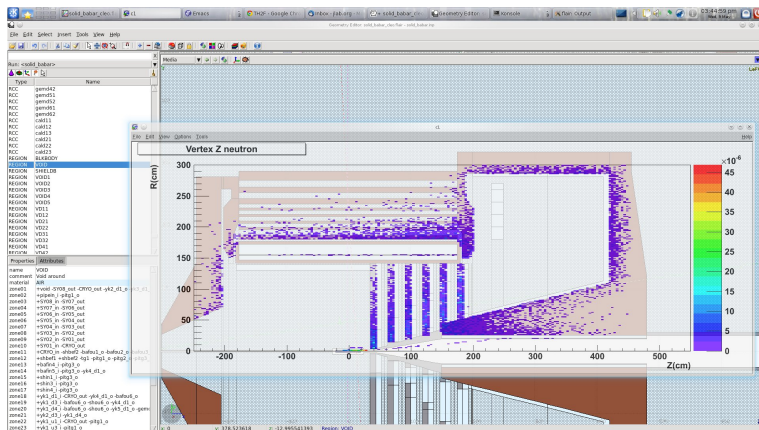


Neutron Origin Vertex on gems (Z)



Neutron Origin Vertex on gems (2D)

Neutron Origin Vertex on gems (Z) Position

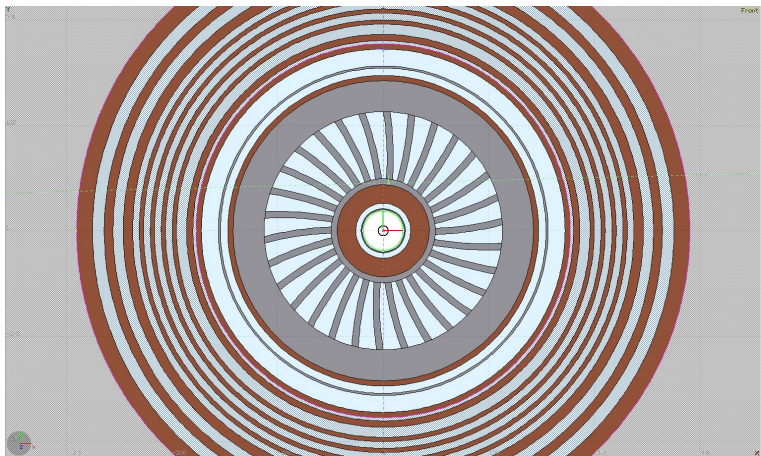


CLEO design



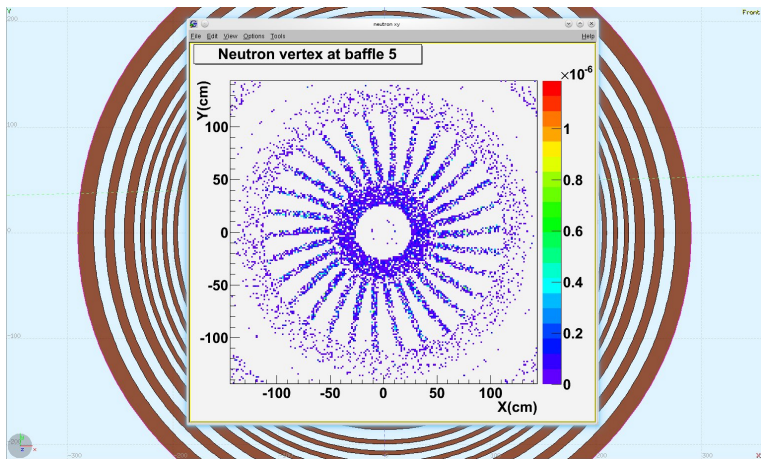
Neutron Origin Vertex on gems (xy) at baffles

Example (Baffle 5)



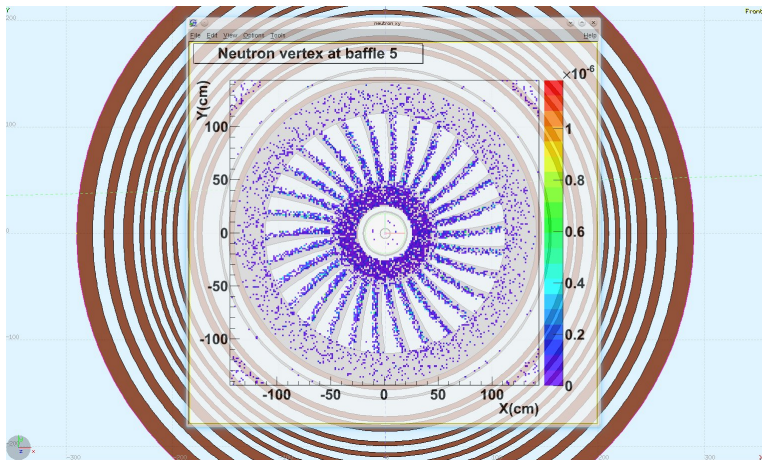
Neutron Origin Vertex on gems (xy) at baffles

Example (Baffle 5) Vertex on gems (xy)



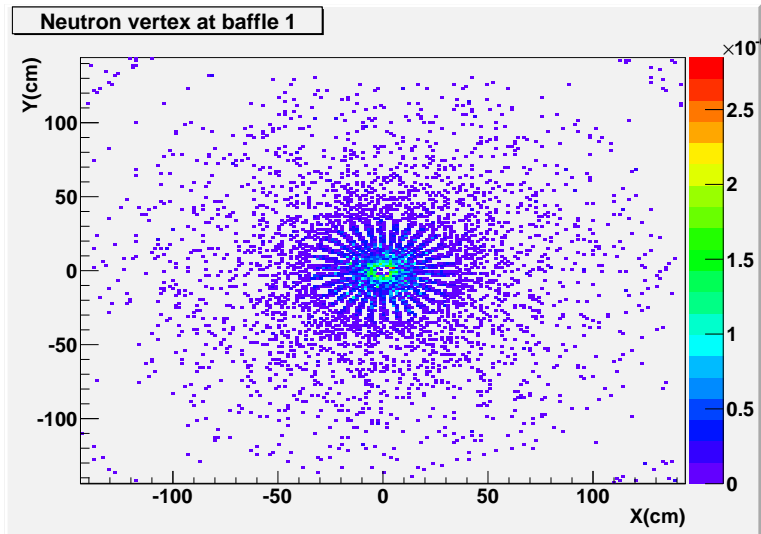
Neutron Origin Vertex on gems (xy) at baffles

Example (Baffle 5) Vertex on gems (xy) Position



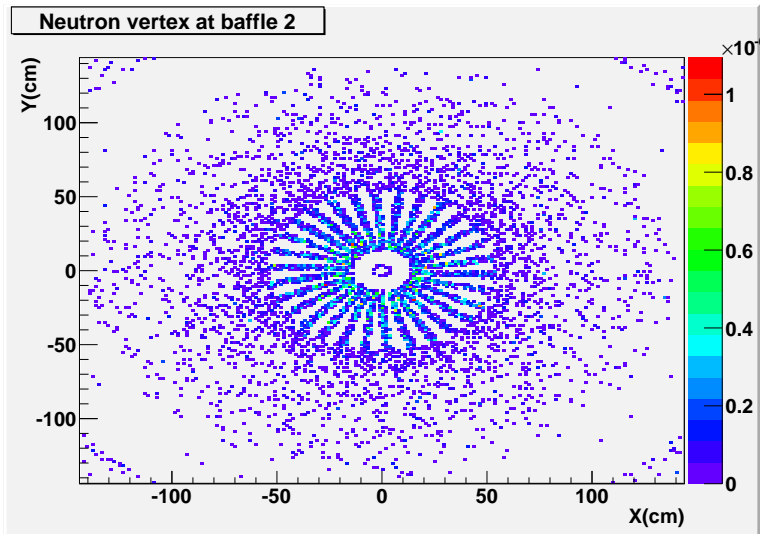
Neutron Origin Vertex on gems (xy) at baffles

Baffle 1 Vertex on gems (xy)



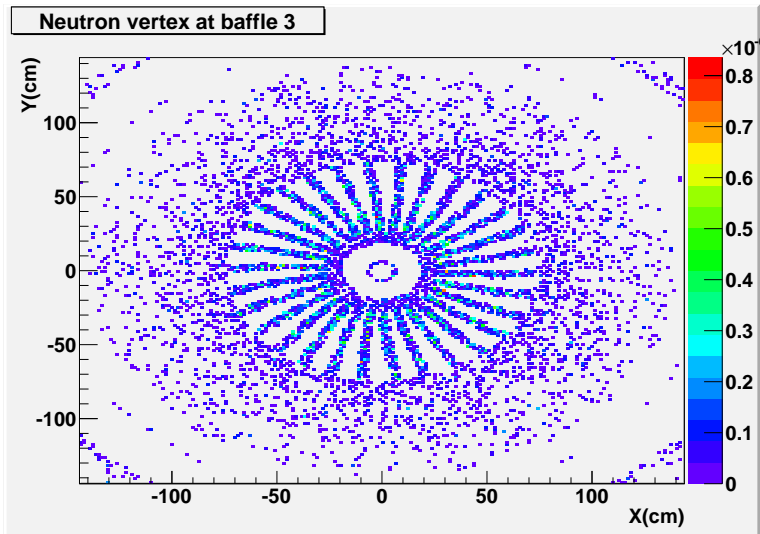
Neutron Origin Vertex on gems (xy) at baffles

Baffle 2 Vertex on gems (xy)



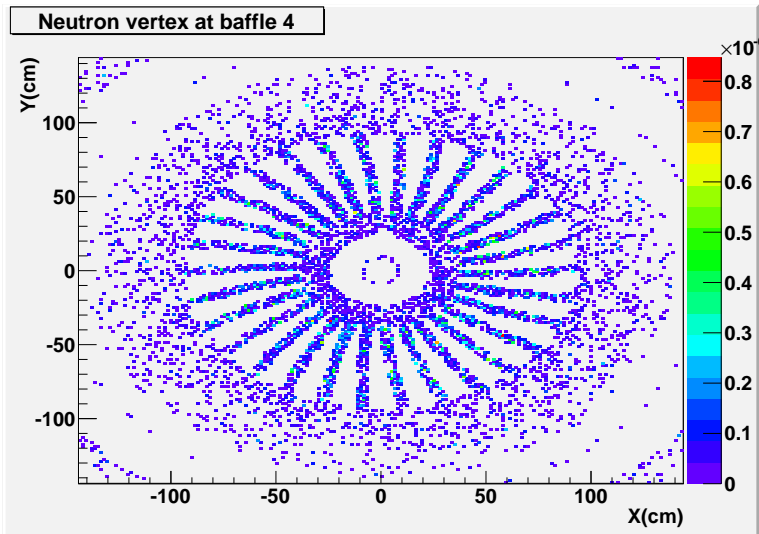
Neutron Origin Vertex on gems (xy) at baffles

Baffle 3 Vertex on gems (xy)



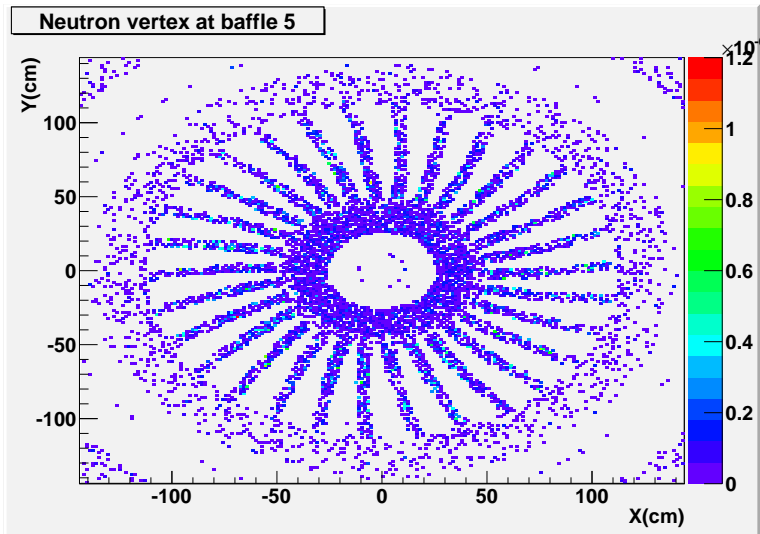
Neutron Origin Vertex on gems (xy) at baffles

Baffle 4 Vertex on gems (xy)



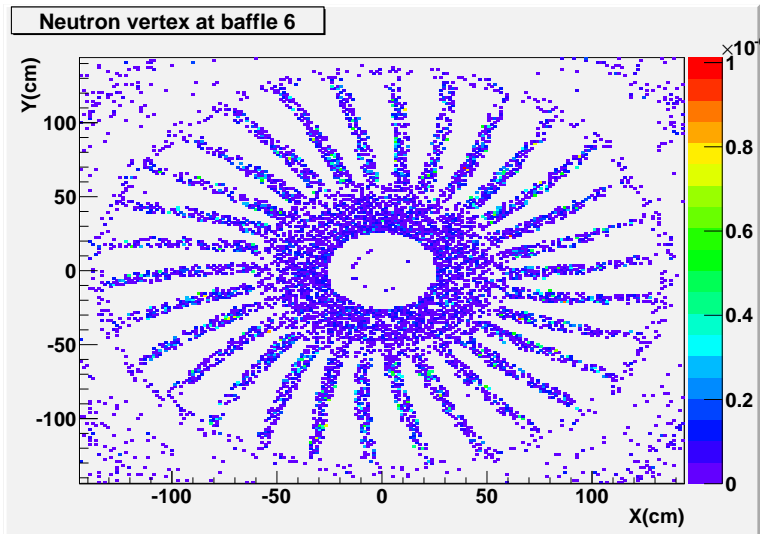
Neutron Origin Vertex on gems (xy) at baffles

Baffle 5 Vertex on gems (xy)



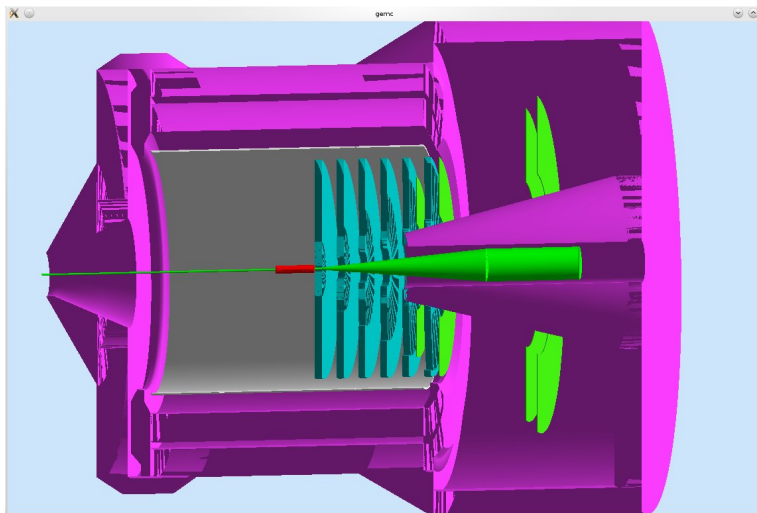
Neutron Origin Vertex on gems (xy) at baffles

Baffle 6 Vertex on gems (xy)



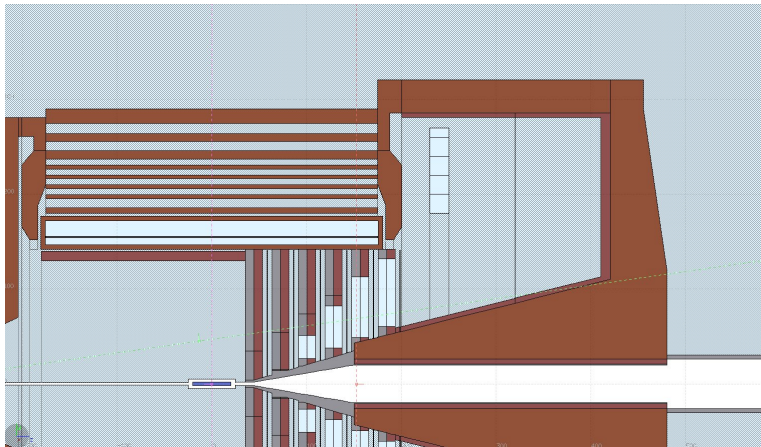
Neutron Origin Vertex on gems (xy) at baffles

Position of gems



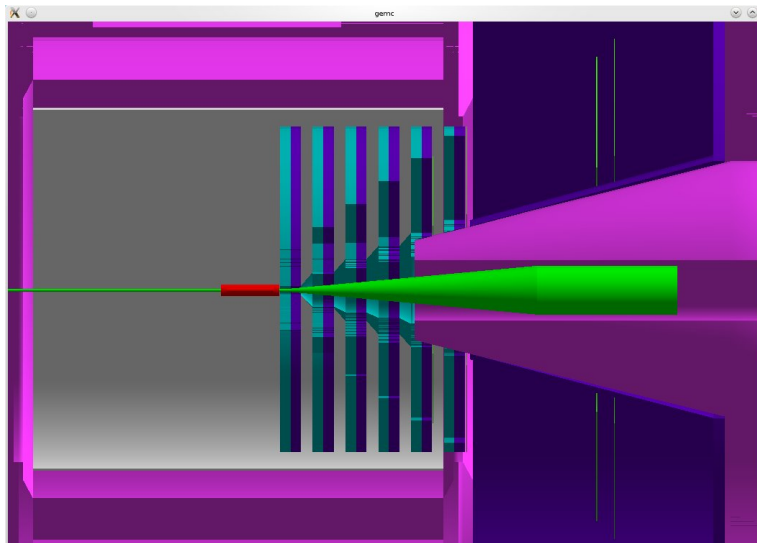
Shielding Strategy

Possible strategy of shielding



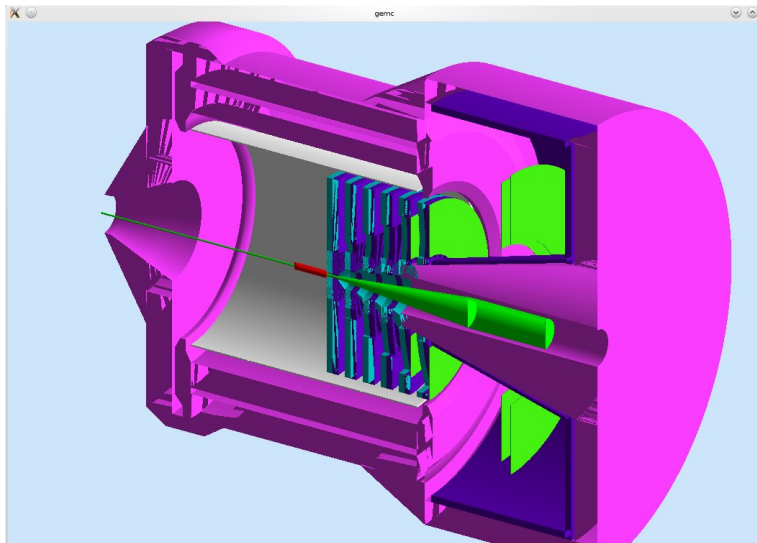
Shielding Strategy

Possible strategy of shielding GEANT4



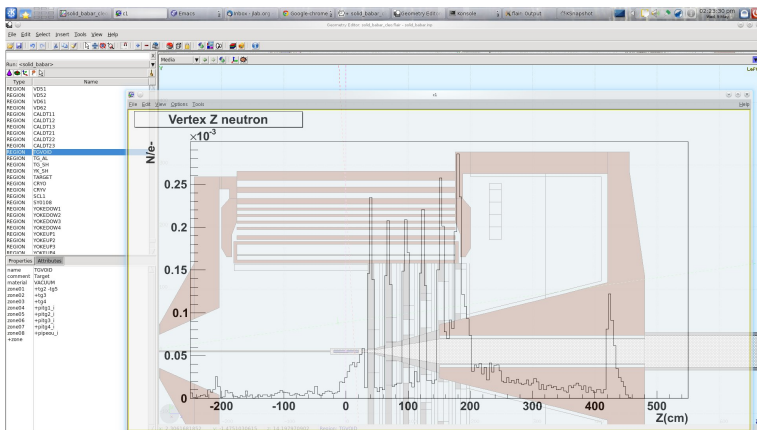
Shielding Strategy

Possible strategy of shielding GEANT4



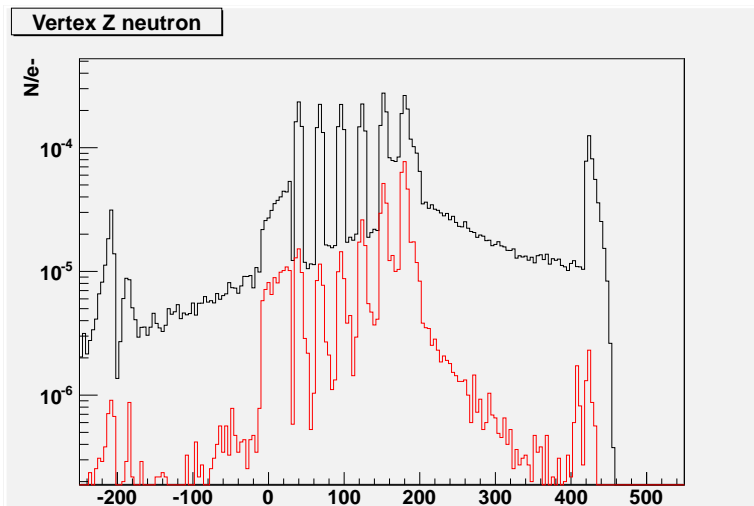
Shielding Strategy

Neutron Origin Vertex on gems (Z) Position



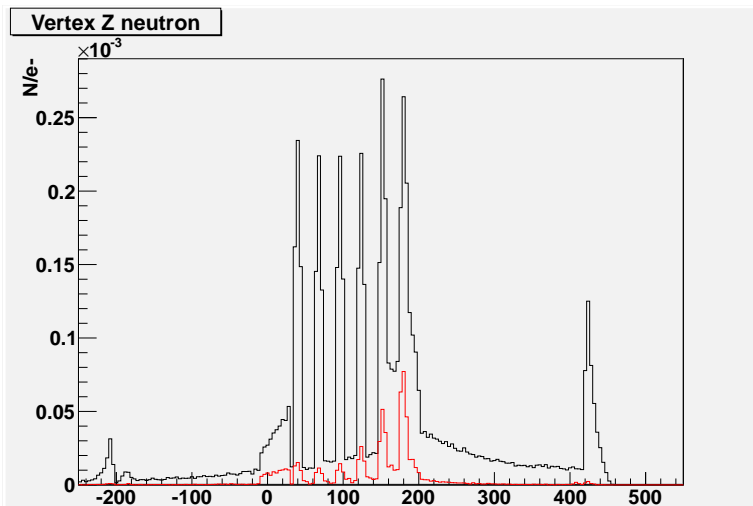
Shielding Strategy

Possible strategy of shielding GEANT4 Z vertex results (Red: with SHIELD)



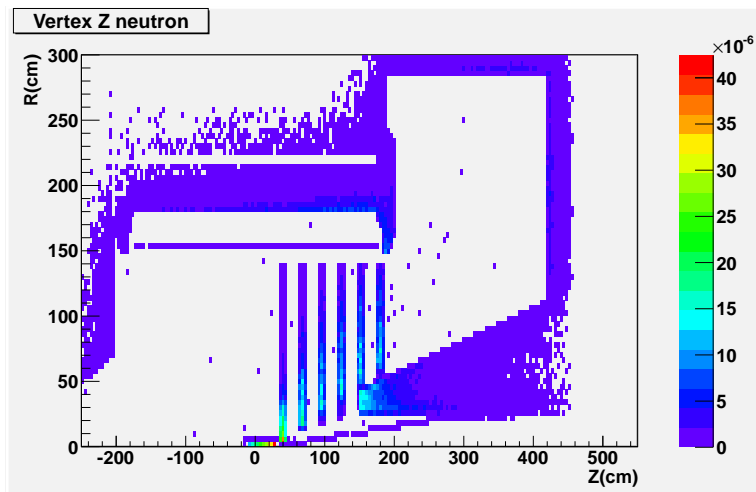
Shielding Strategy

Possible strategy of shielding GEANT4 Z vertex results (Red: with SHIELD)



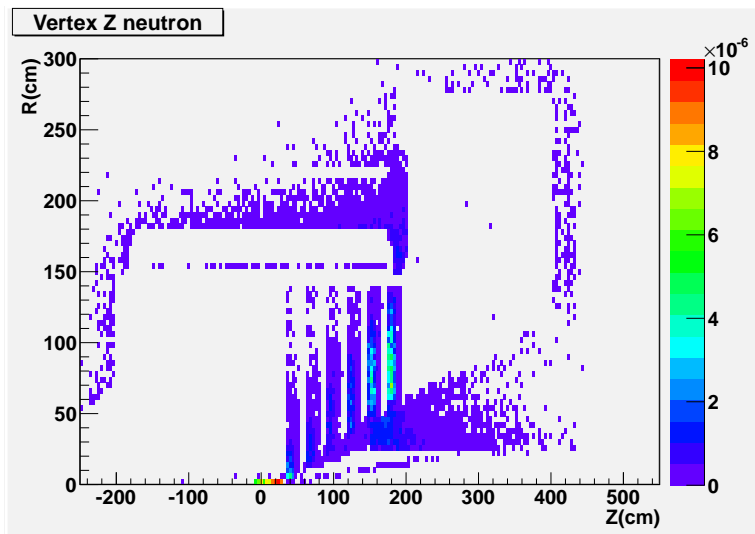
Shielding Strategy

Possible strategy of shielding GEANT4 R,Z 2d NO SHIELD



Shielding Strategy

Possible strategy of shielding GEANT4 R,Z 2d WITH SHIELD



Shielding Strategy

CONCLUSIONS, TO DO

- Geant4 is a good tool to integrate with FLUKA
- Energy binning for neutrons to better design the shielding (more statistic needed) (used for ideas for shielding)
- Update shielding design on GEANT4 to check local importance of shielding (STARTED, results on last part)
- Update baffle “pedestal” (Started, seems giving good results)