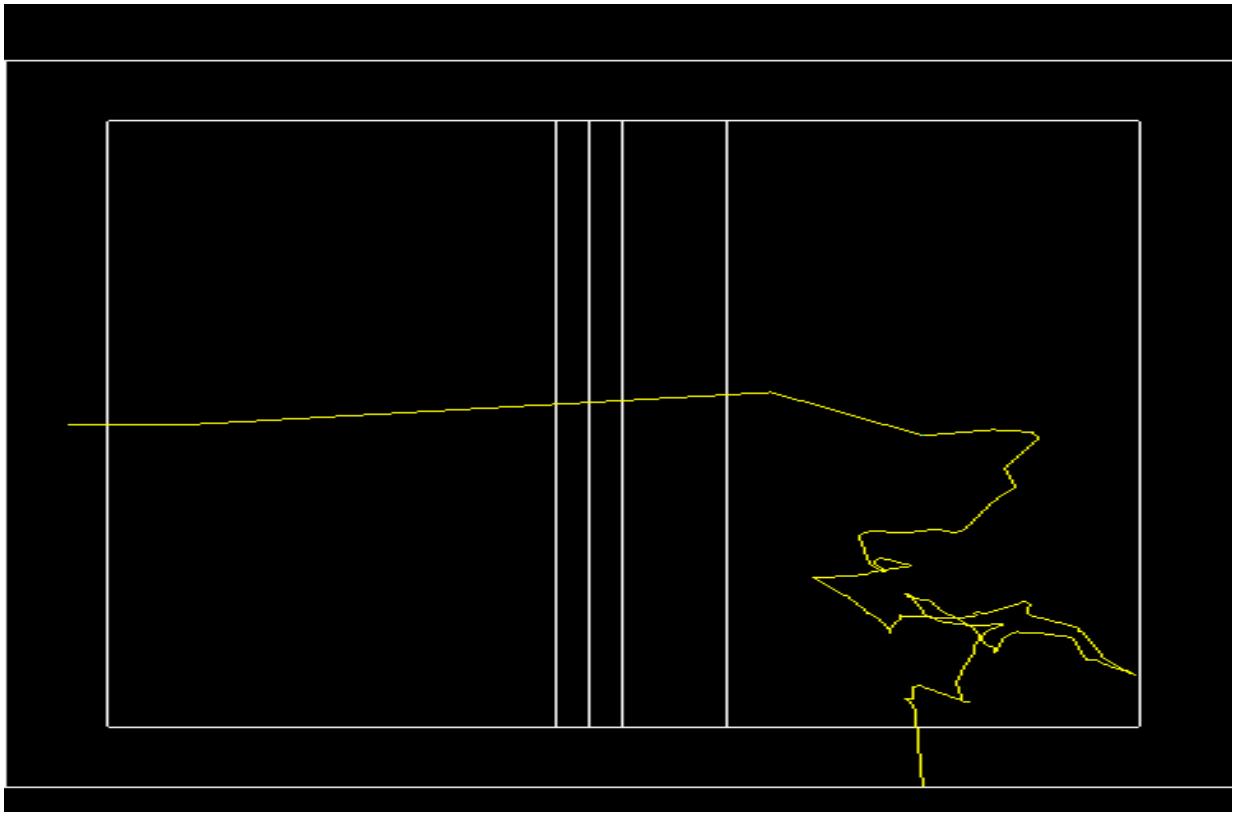
Hadr07

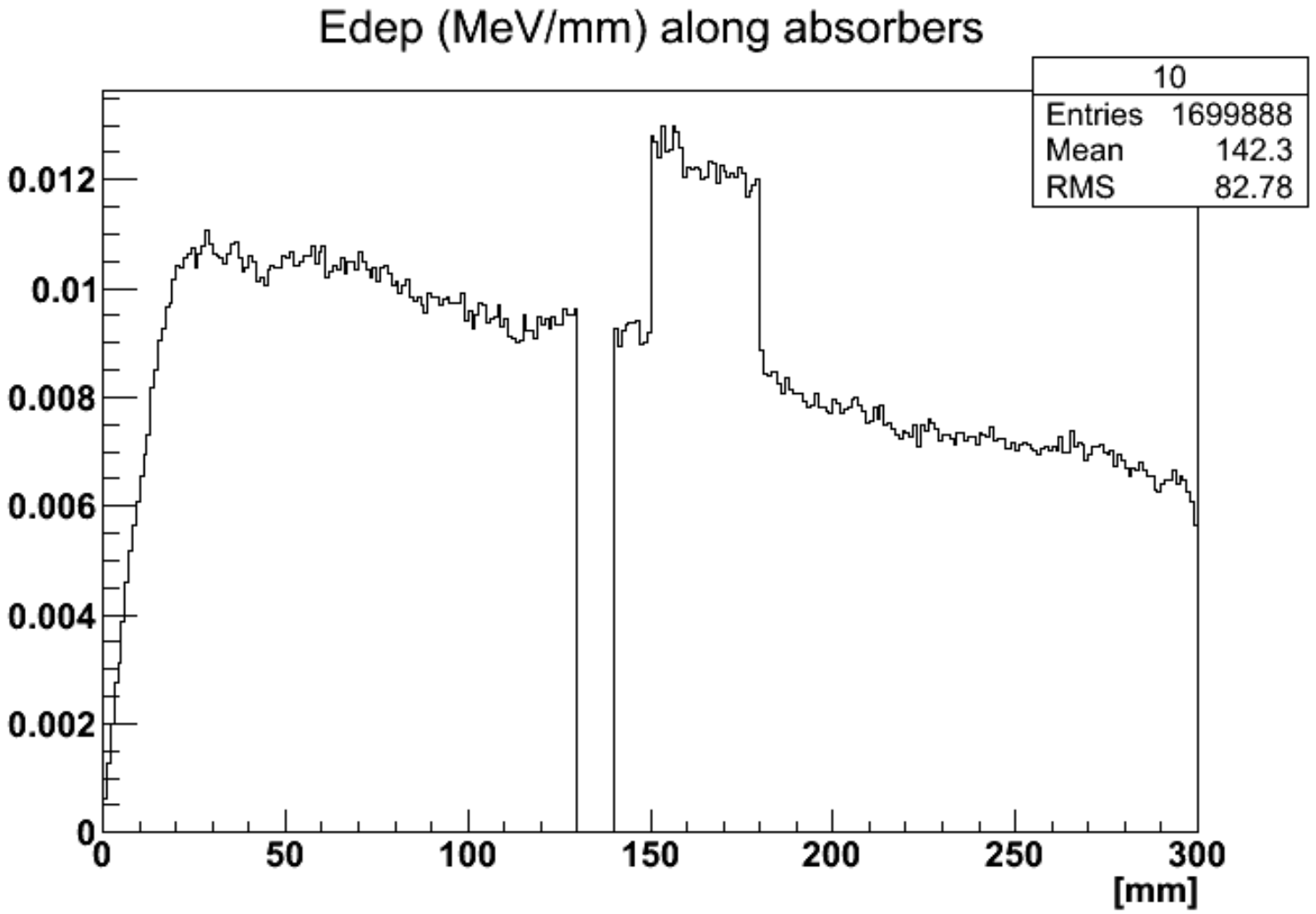
- Survey energy deposition and particles flux from an hadronic cascade.
- Use PhysicsConstructor objets rather than G4 PhysicsLists.
  - Among them : neutron thermal scattering, ions physics, radioactive decay, simplified EM physics
- Show how to plot a depth dose profile in a layered rectangular box.
- Multi-threads. Histograms. Visualization

an event : neutron 6 MeV

```
# multiLayers
#
/testhadr/det/setNbOfAbsor  5
/testhadr/det/setAbsor 1 Water  13 cm
/testhadr/det/setAbsor 2 G4_AIR  1 cm
/testhadr/det/setAbsor 3 Water   1 cm
/testhadr/det/setAbsor 4 G4_B-100_BONE  3 cm
/testhadr/det/setAbsor 5 Water  12 cm
/testhadr/det/setSizeYZ  30 cm
```



hadr07 : gamma (6 MeV)

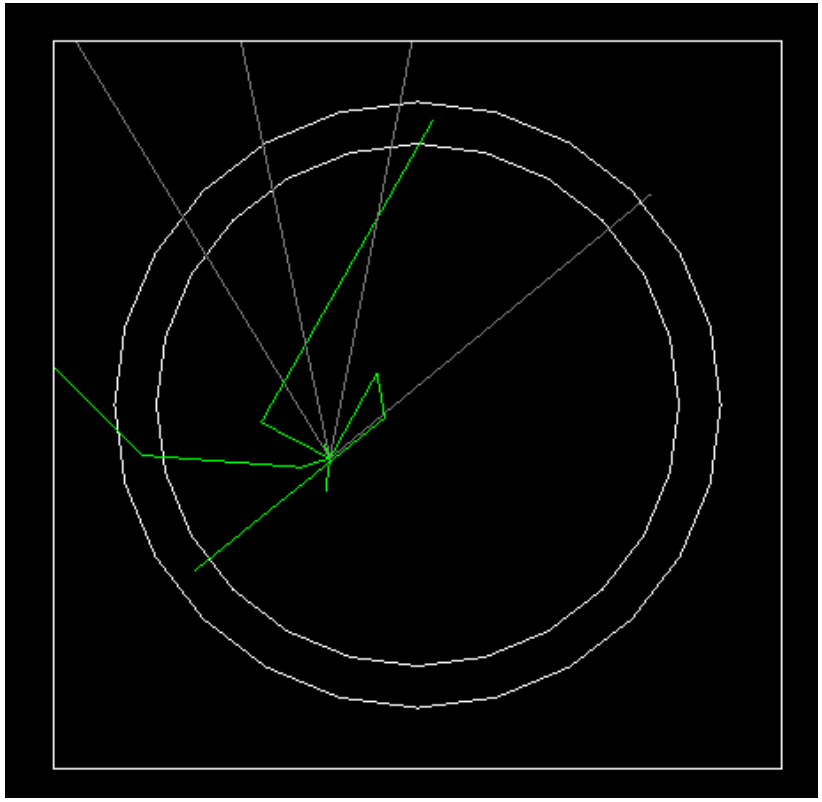


AmBe

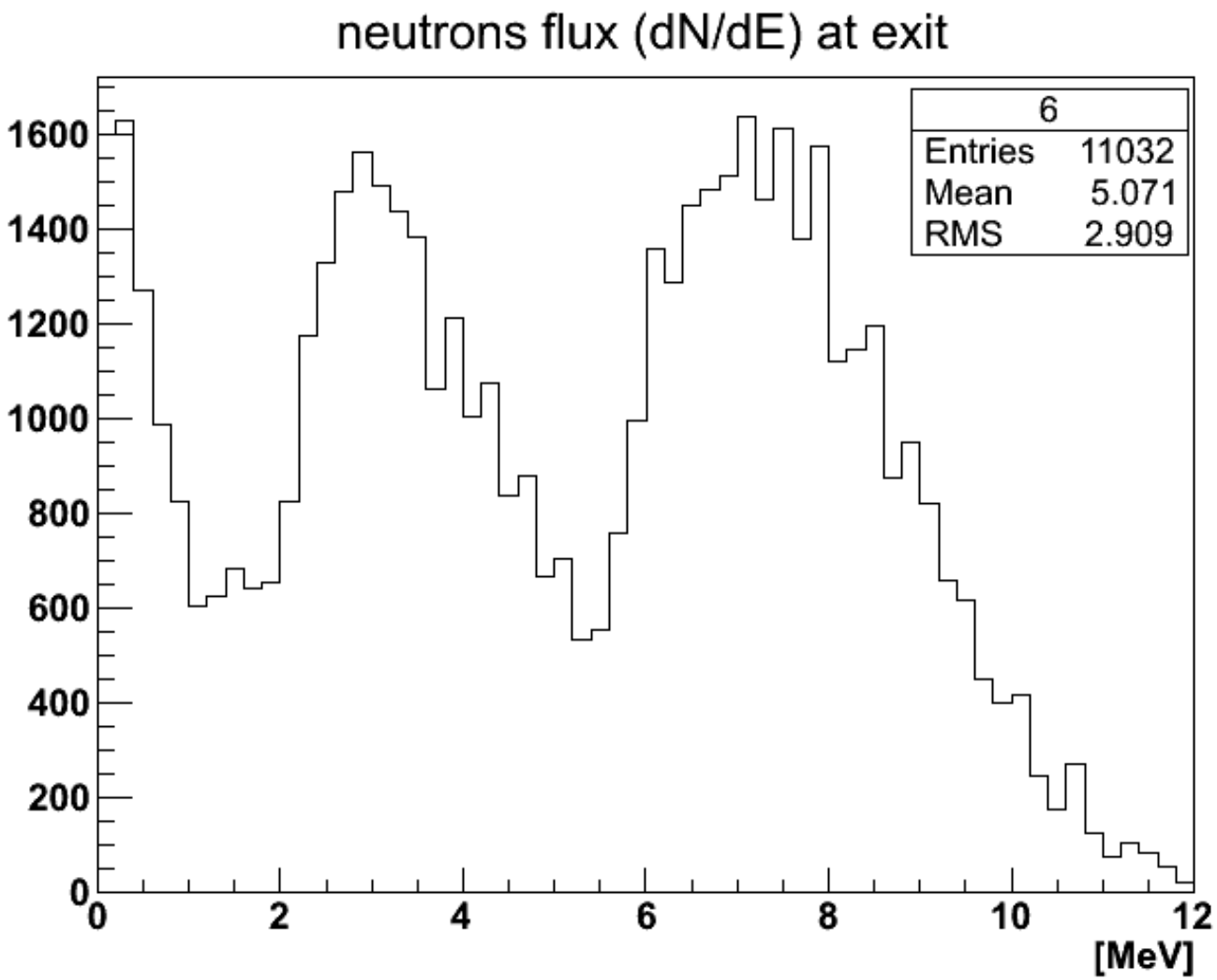
- A popular neutron source via Be (α,n) C
- α (~ 5 MeV) provided by Am241 decay
- Materials : Beryllium oxide powder within a cylindrical container in stainless-steel
- Gun : Am241 at rest randomly shooted within BeO powder
- Use PhysicsConstructor objets rather than G4 PhysicsLists.
  - Among them : neutron thermal scattering, ions physics, radioactive decay, simplified EM physics
- Survey flux of emerging particles : neutrons, gammas, neutrinos ...
- Multi-threads. Histograms. Visualization

AmBe : additional comments

- A system in which radioactive decays and low energy nuclear reactions are of equal importance
- A good candidate to test [ParticleHP + G4TENDL] package
- Low efficiency, eg. 1 neutron emerging from container for more than 1000 Am241 decays → must be run preferentially in MT mode
- Investigate biasing possibilities ? …



AmBe


neutrons flux (dN/dE) at exit
6
Entries 11032
Mean 5.071
RMS 2.909
1600
1400
1200
1000
800
600
400
200
0
0
2
4
6
8
10
12
[MeV]