

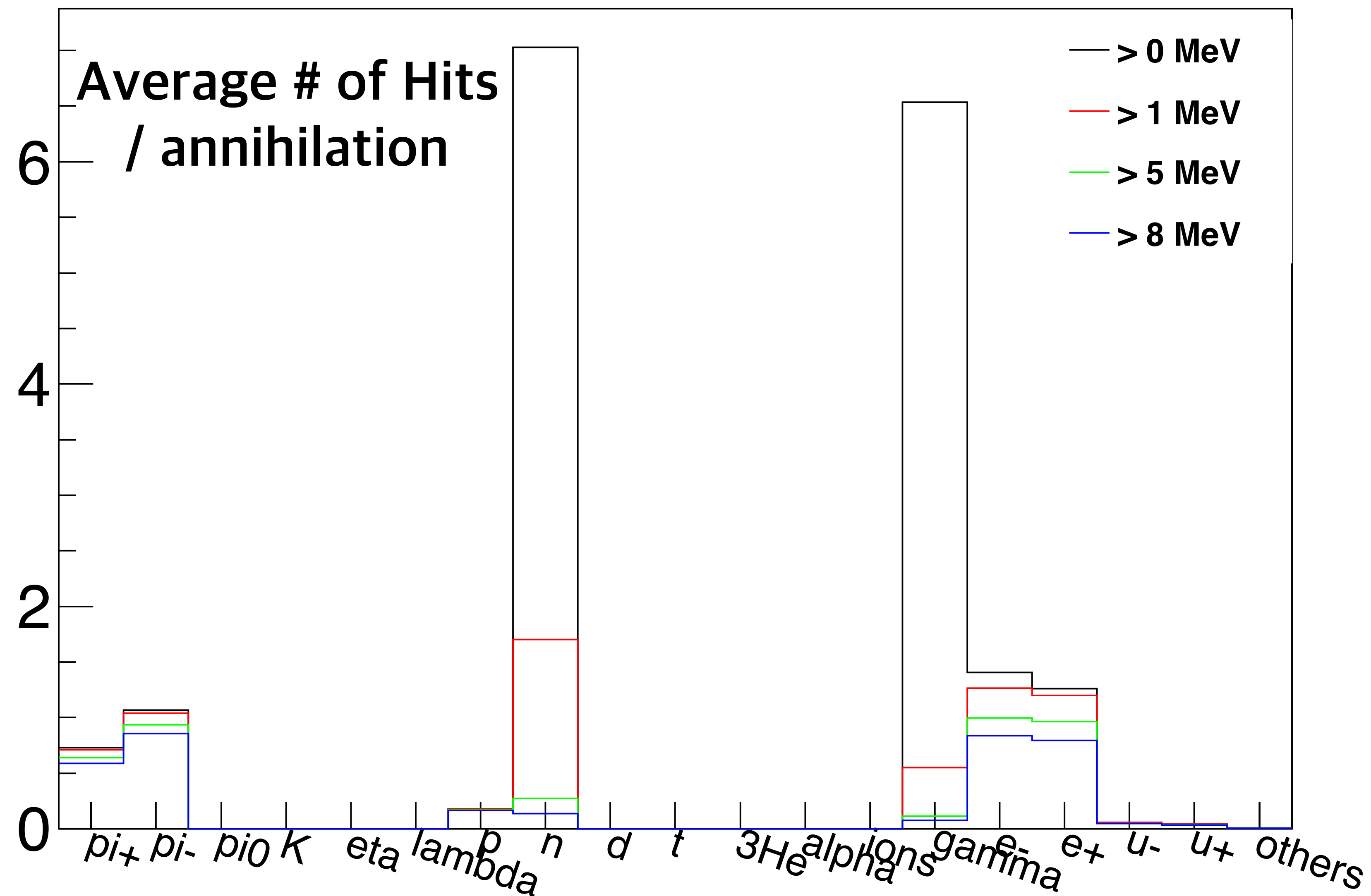
Status report (04 Jan. 2017)

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Considering All Hits

- Until now, only checked charged pions from annihilation
- Should check all possible hits in the simulation
- Issue
 1. Which secondary particles hit?
 2. Their source or origin?
 3. Energy loss according to the sort of particles?
 4. Time-of-Flight according to the sort of particles?

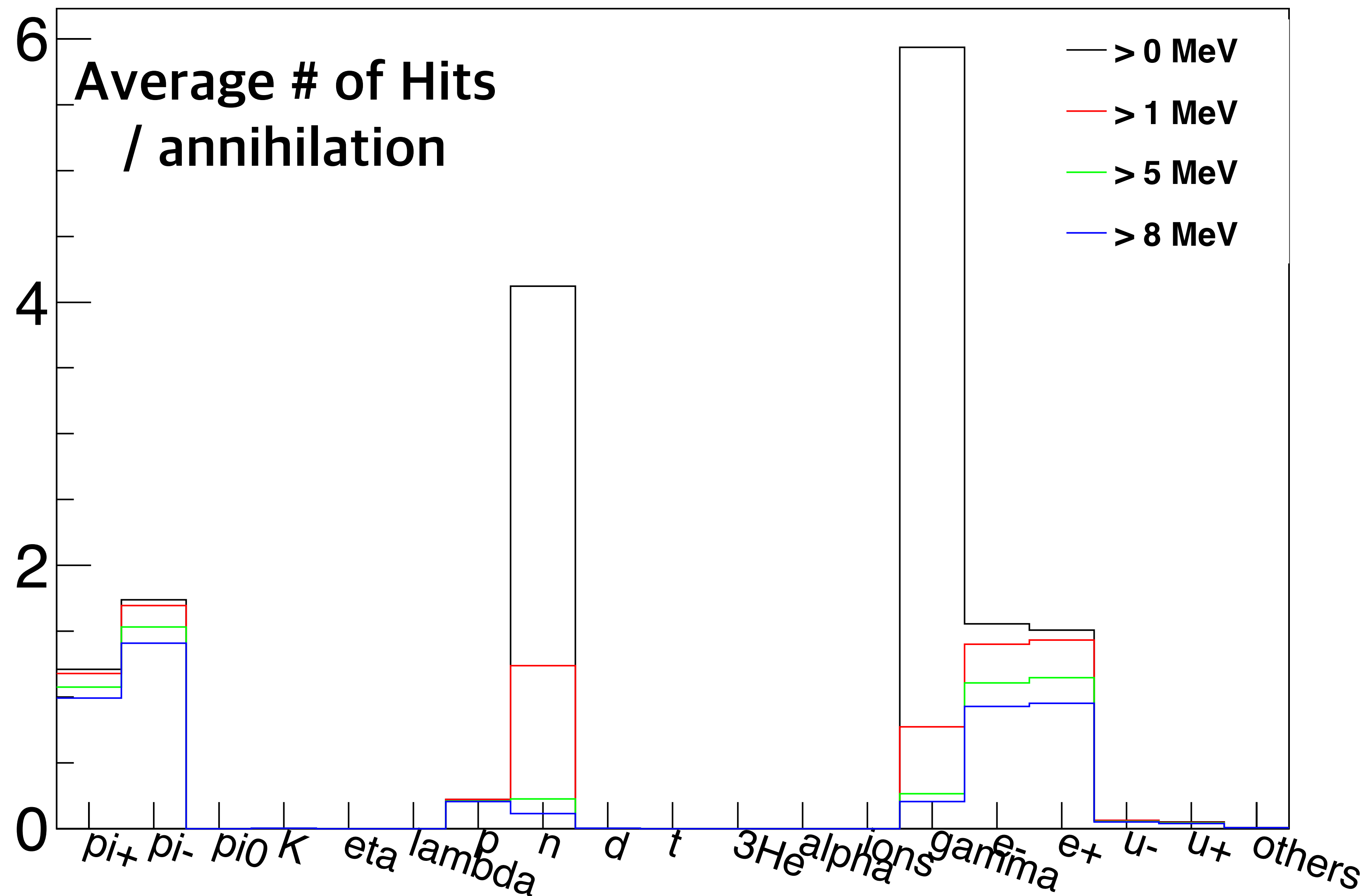
Which secondary particles hit?



**Top Detector Height
825 mm**

Top Annihilation

Which secondary particles hit?



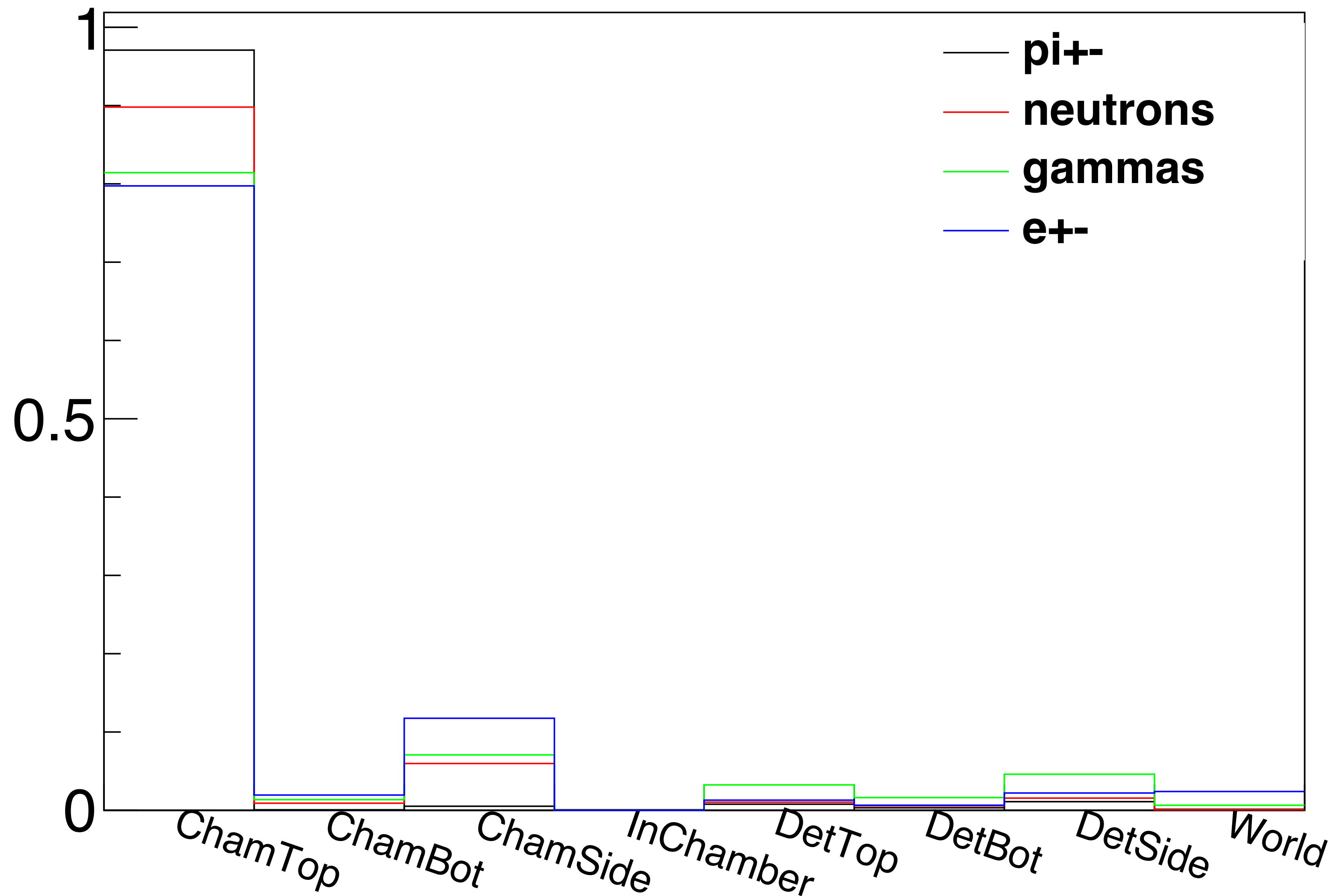
**Top Detector Height
825 mm**

Bottom Annihilation

Which secondary particles hit?

- From the previous results,
 1. A lot of neutrons and gammas hits.
 2. Almost neutrons and gammas have low energy.
 3. The number of hits of electrons and positrons is comparable to pions.
 4. Even if high threshold, the e^+e^- hits do not decrease much.

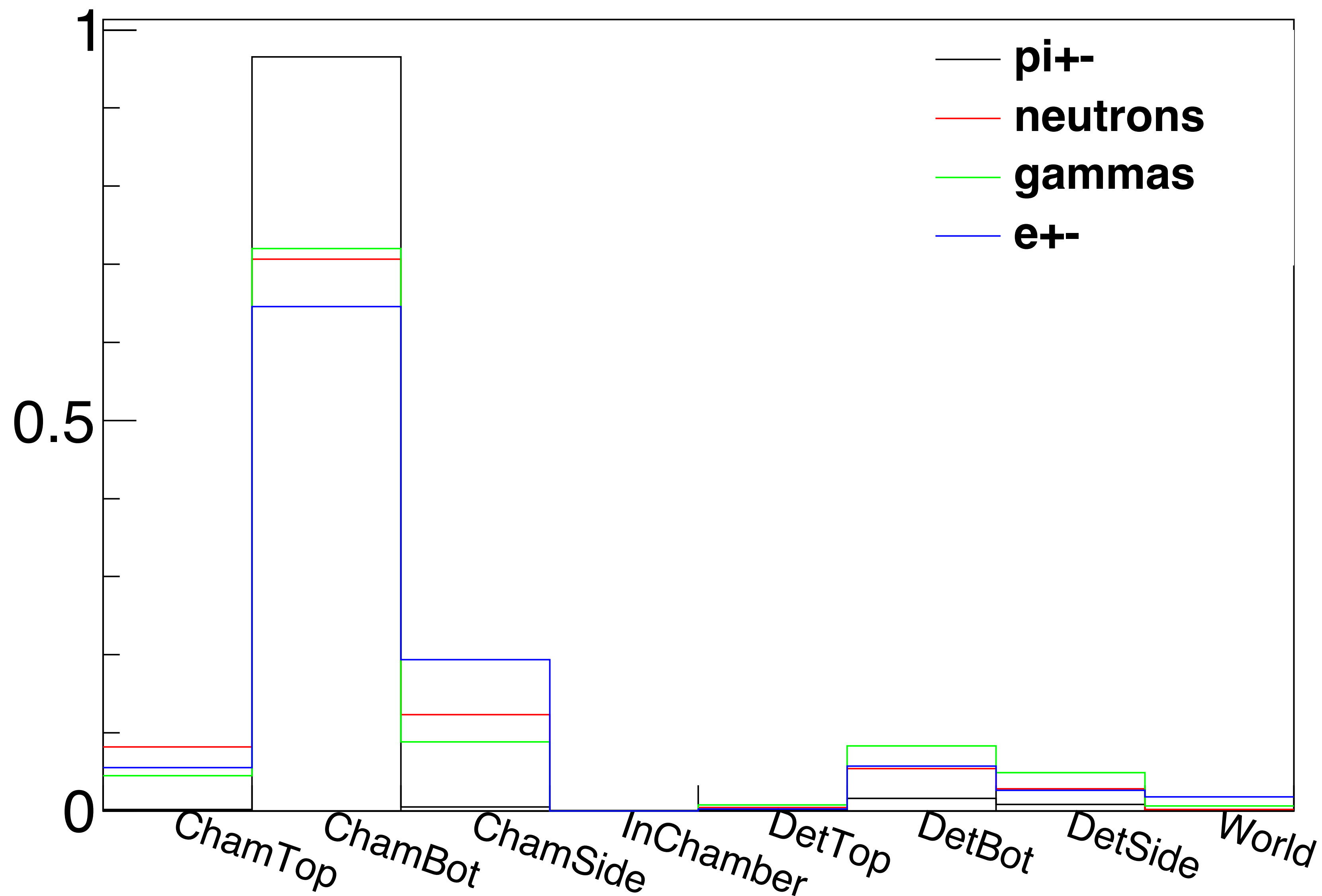
Their source or origin?



Top Detector Height
825 mm

Top Annihilation

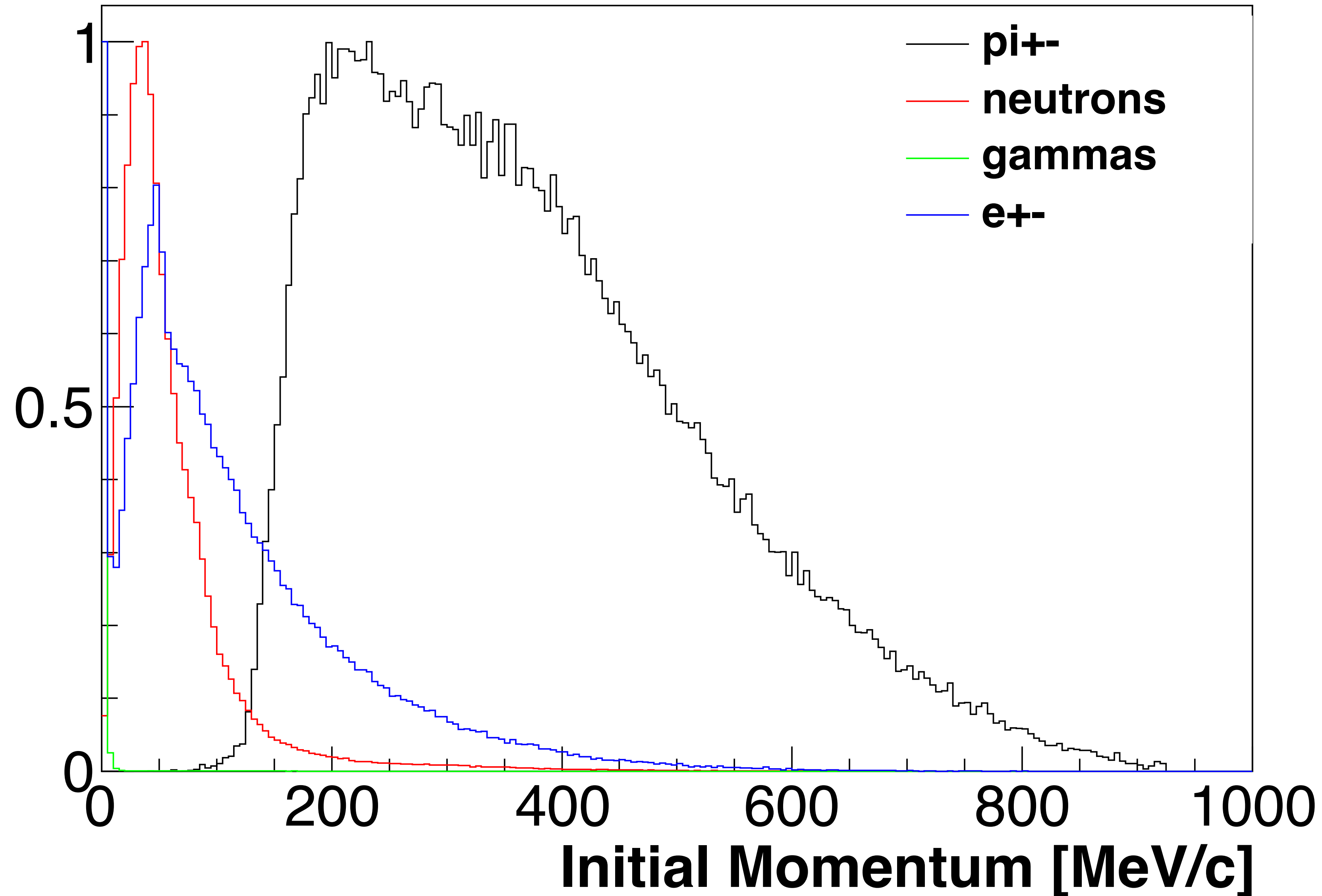
Their source or origin?



Top Detector Height
825 mm

Bottom Annihilation

Their source or origin?



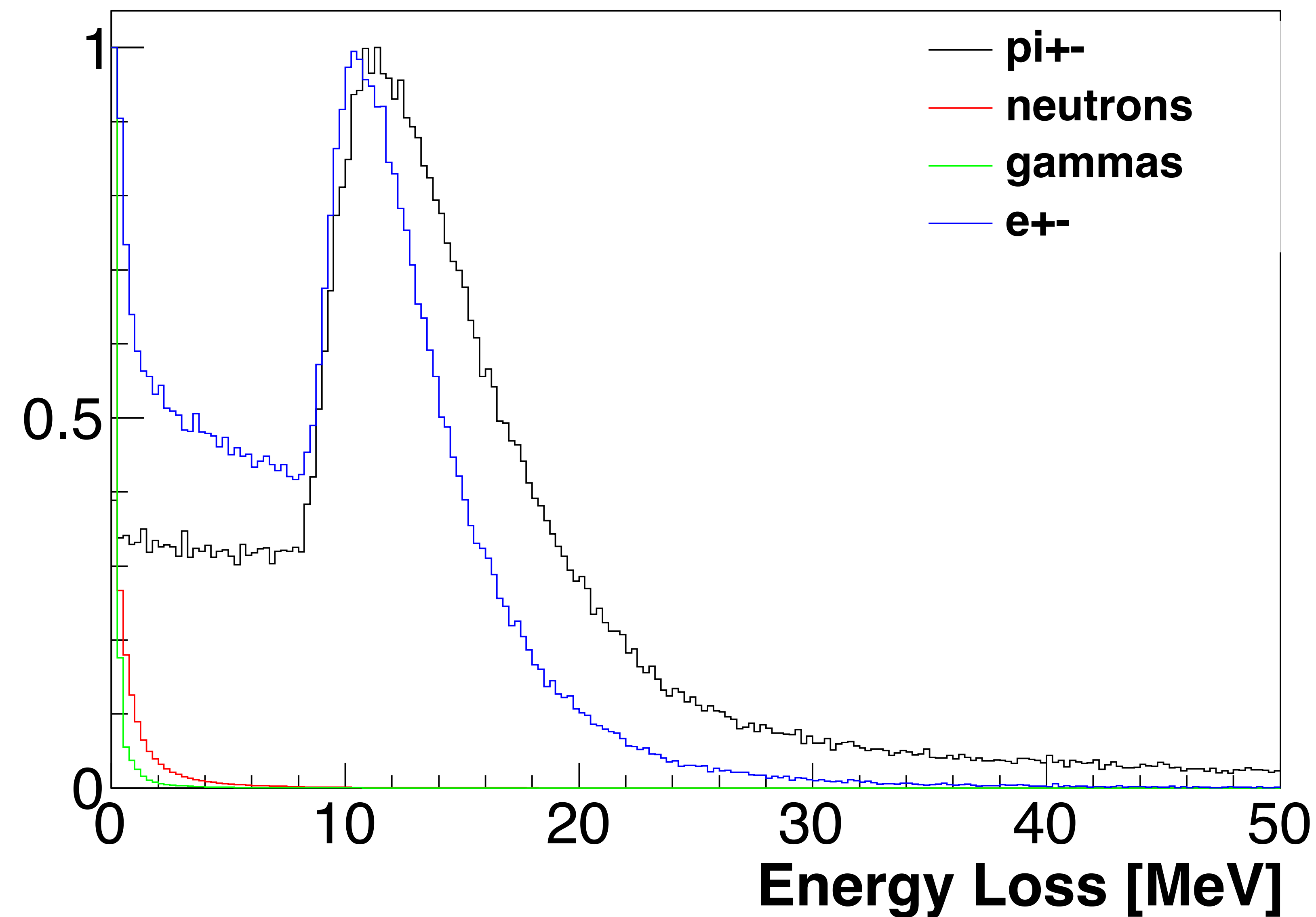
Low energy:
neutron, gamma

High energy:
pions, e^{+-}

Their source or origin?

1. Charged Pions: from anti-proton annihilation
2. Neutrons: from anti-proton annihilation
3. gammas: from anti-proton annihilation (low E)
from neutron pion decay (high E)
4. electrons, positrons: from scattering (low E)
from pair creation of high E gamma (high E)

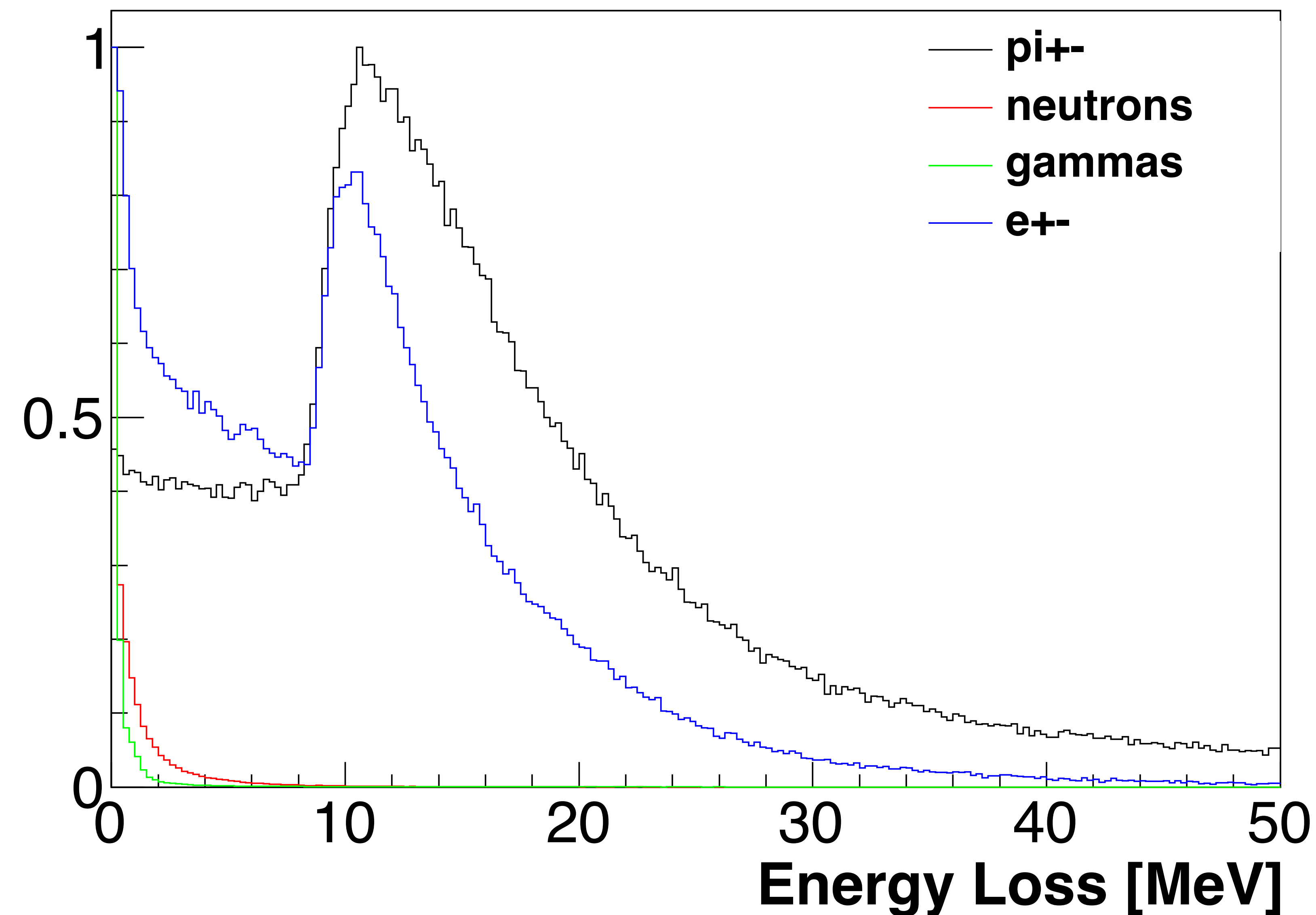
Energy loss according to the sort of particles?



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Top Annihilation

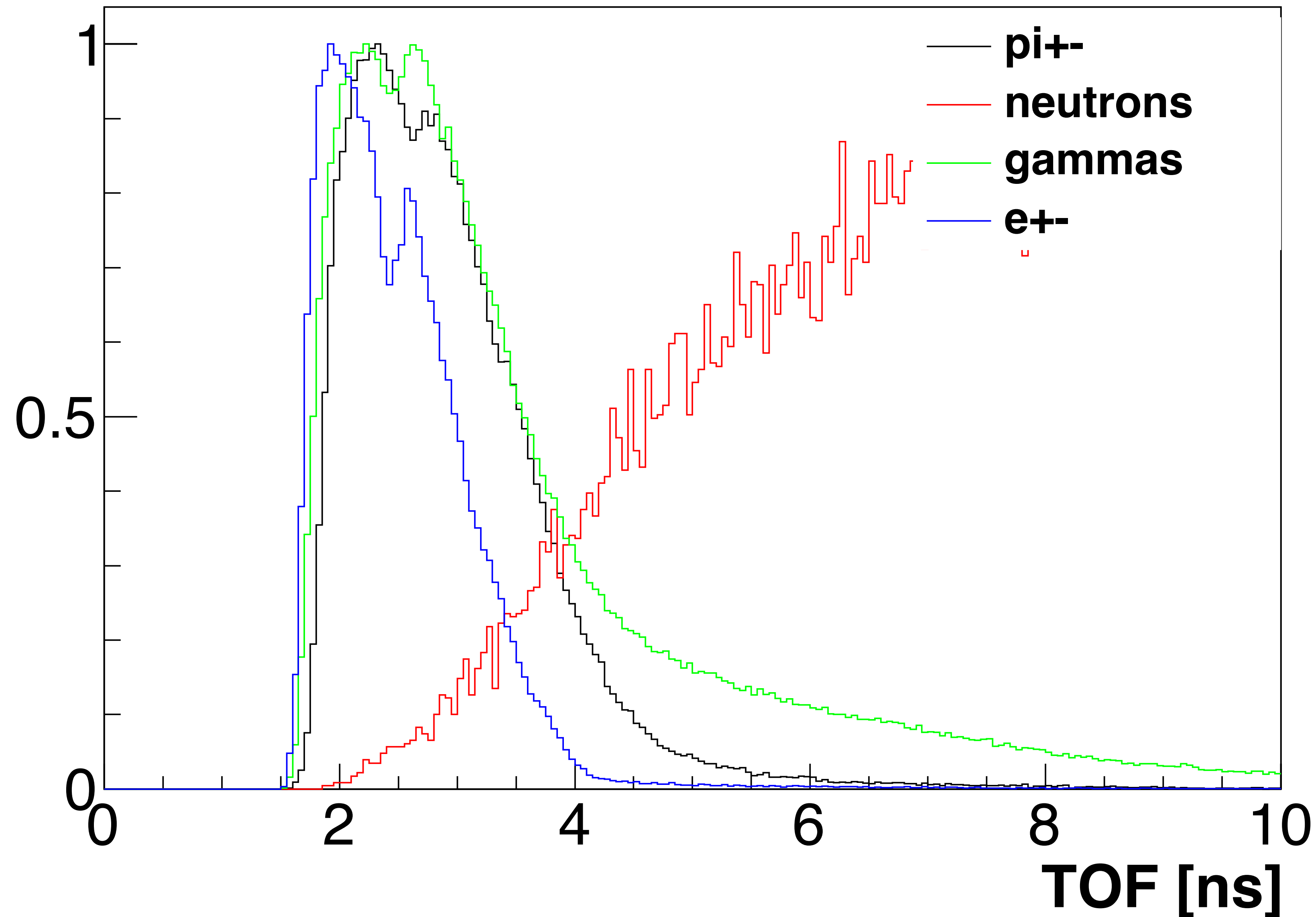
Energy loss according to the sort of particles?



Top Detector Height
825 mm

Bottom Annihilation

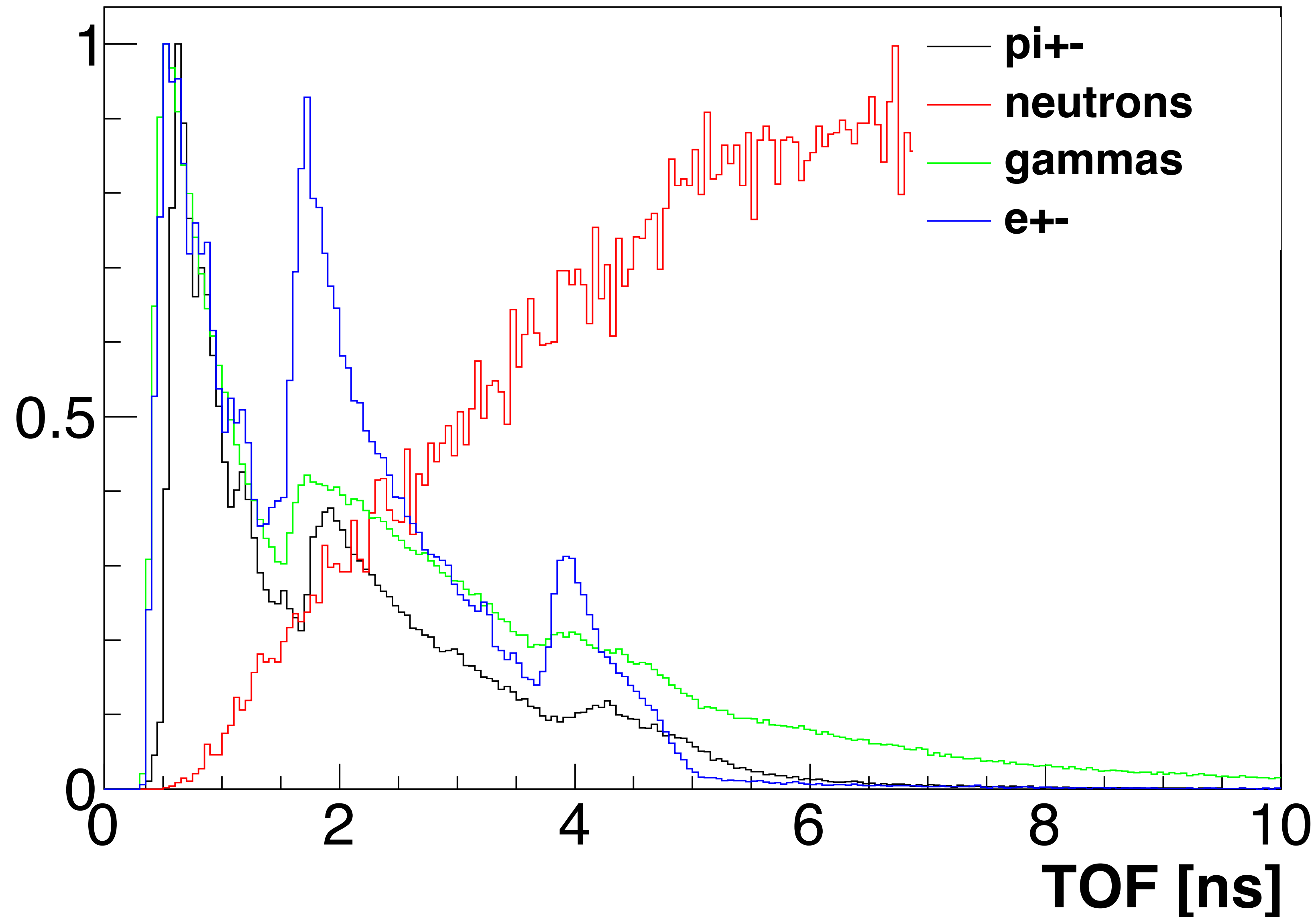
Time-of-Flight according to the sort of particles?



Top Detector Height
825 mm

Top Annihilation

Time-of-Flight according to the sort of particles?



**Top Detector Height
825 mm**

Bottom Annihilation