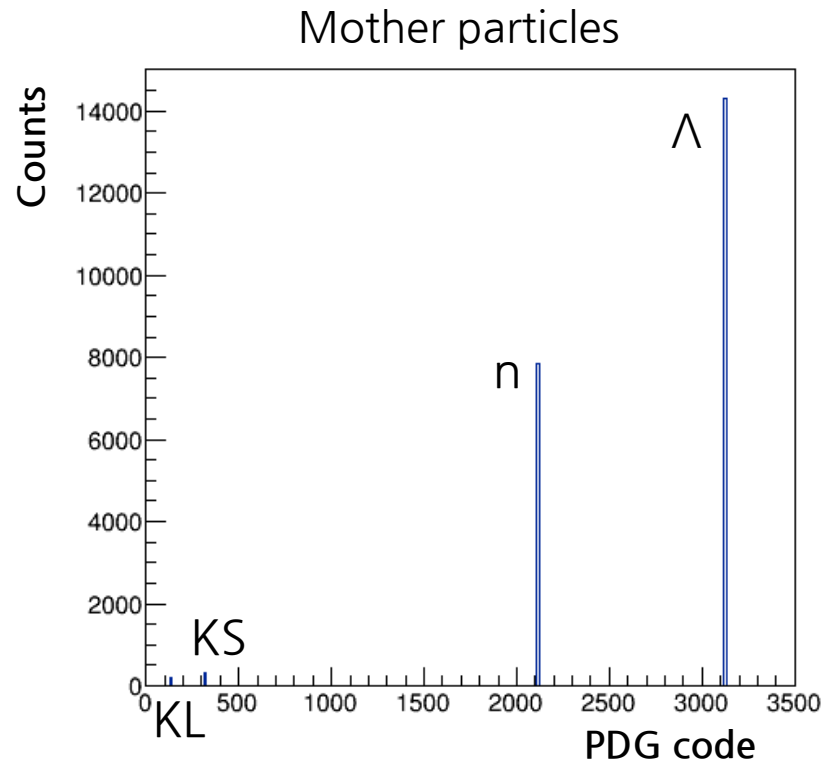
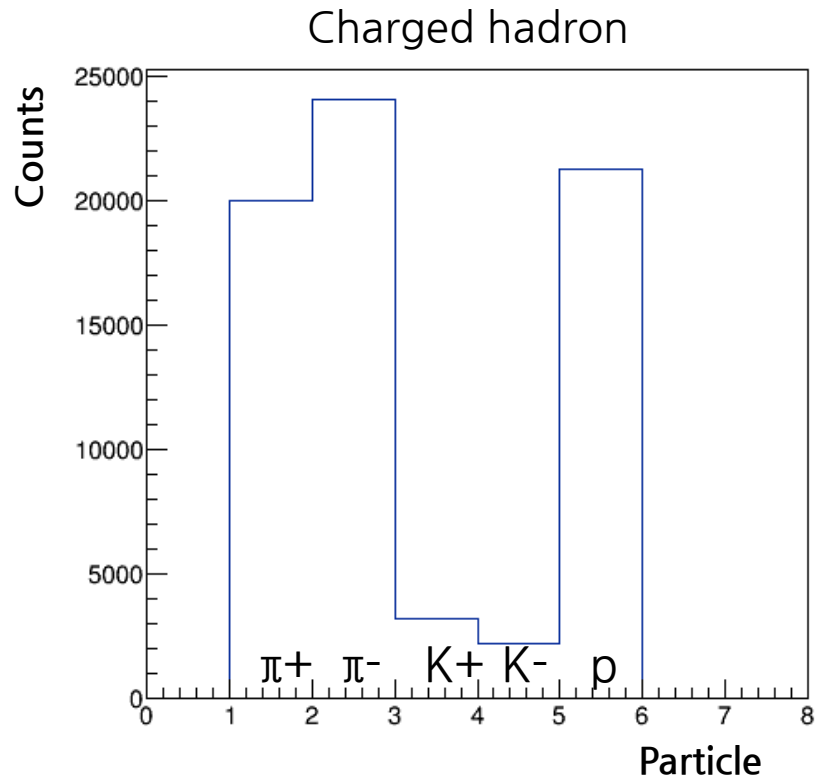


Source of the charged background

Apr 6
Minho Kim

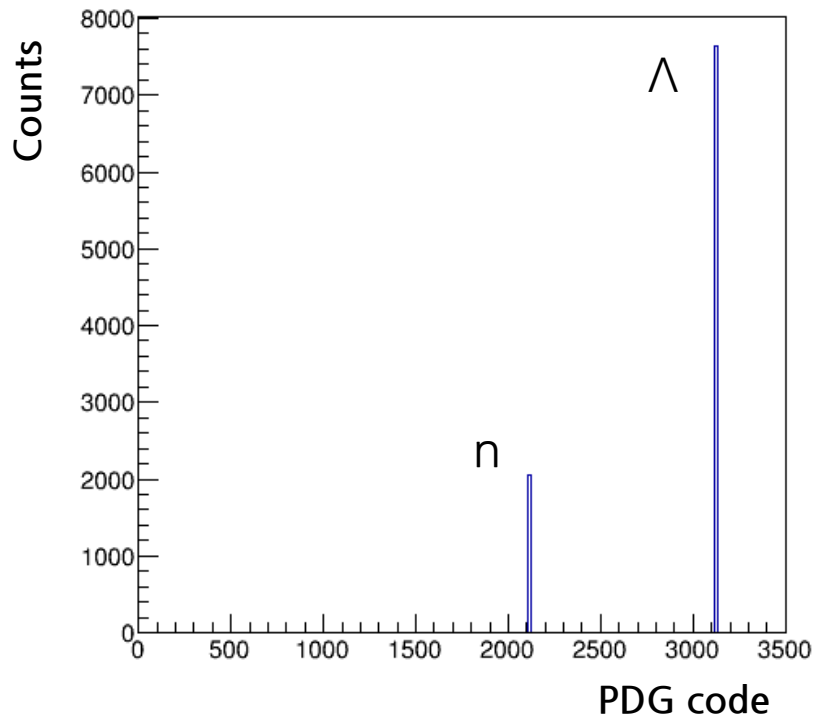
Source of the charged background



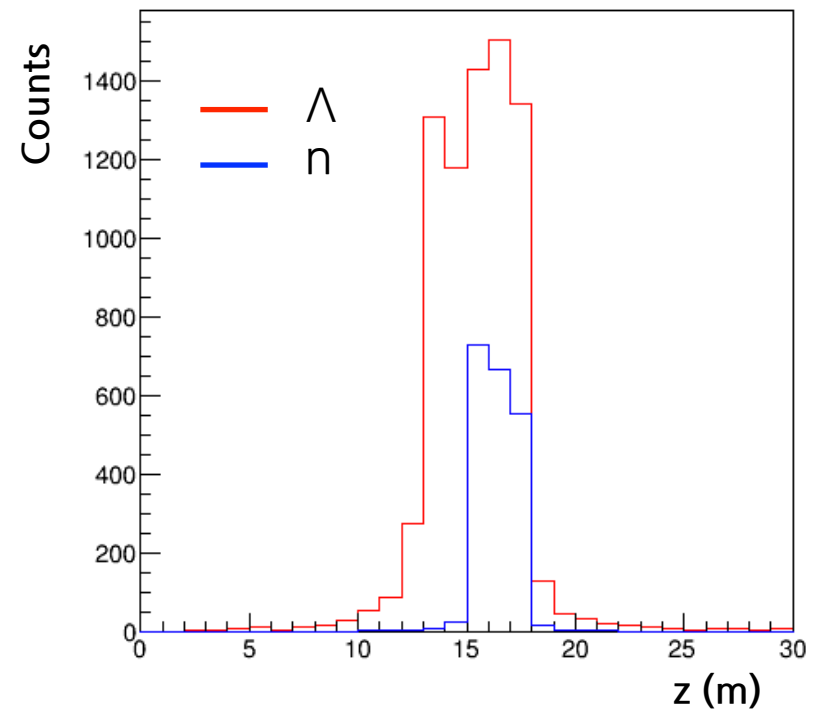
- Charged hadron background is composed of the charged pions, charged kaons and protons.
- Forward particles have track IDs of the mother particles.
- Sources of the charged background are either particle decay or beam pipe interaction.

Source of the proton

Mother particles



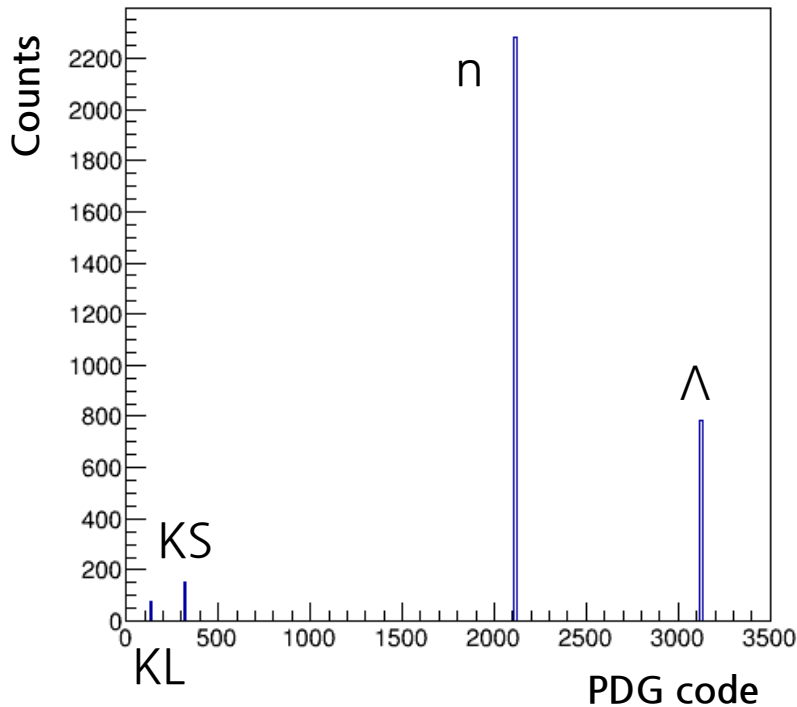
Meeting z position



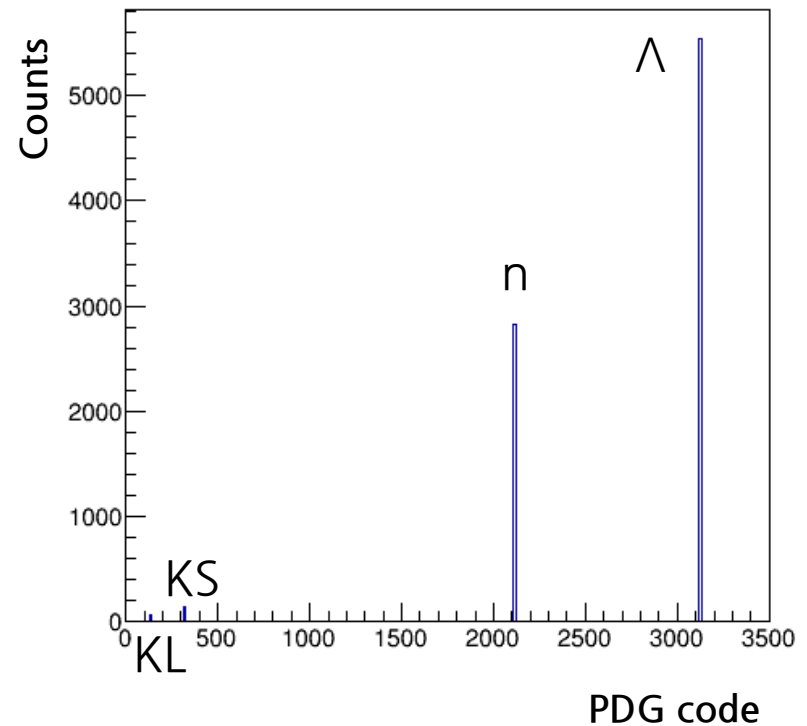
- Forward particles have track IDs of the mother particles but no information about the vertex position or physics process.
- We can indirectly calculate the vertex position using the kinematic information.
- The calculated z position is not very precise due to the further interaction but gives information about the physics process.

Source of the charged pions

Mother particles (π^+)



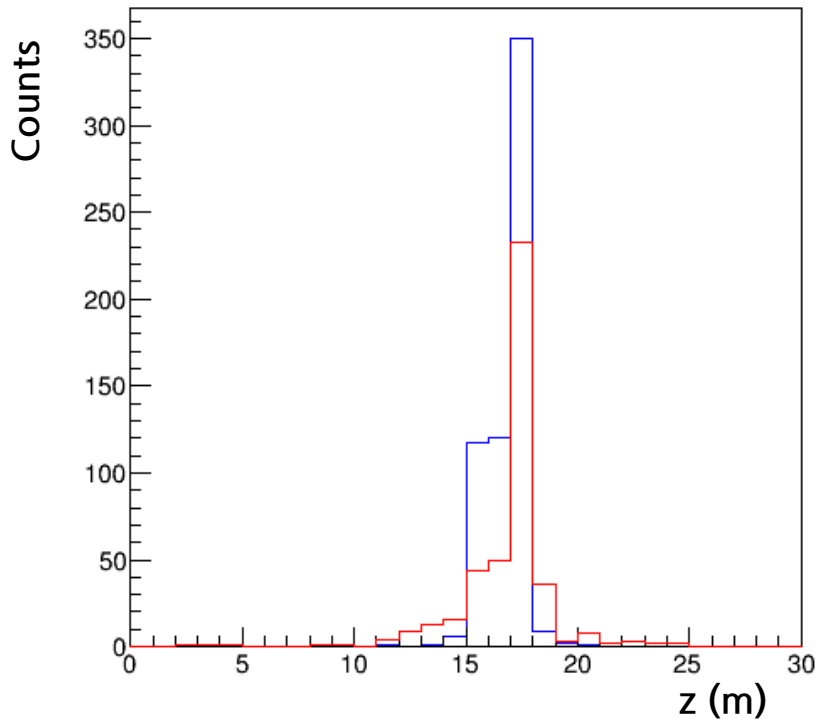
Mother particles (π^-)



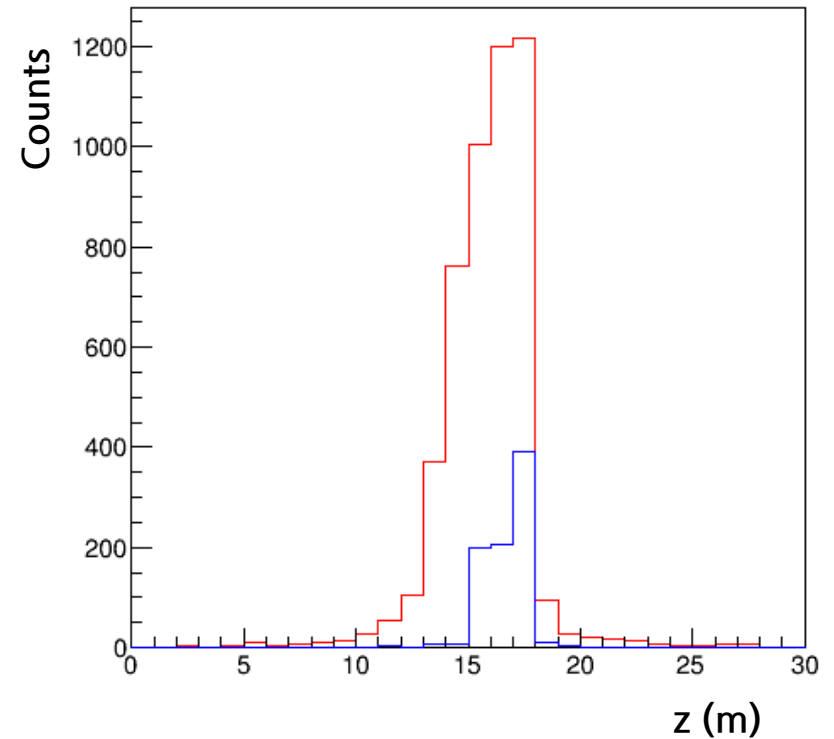
- Since the π^- can also come from the lambda decay, fraction of lambda in the mother particle distribution for π^- is higher than π^+ .
- When it comes to π^+ , we expect narrow z distribution for both neutron and lambda.

Source of the charged pions

Meeting z position (π^+)



Meeting z position (π^-)



- Since the π^- can also come from the lambda decay, z distribution of lambda is broad for π^- .
- Since the π^+ comes from the beam pipe interaction of neutron and lambda, we can see narrow z distributions for those mother particles.