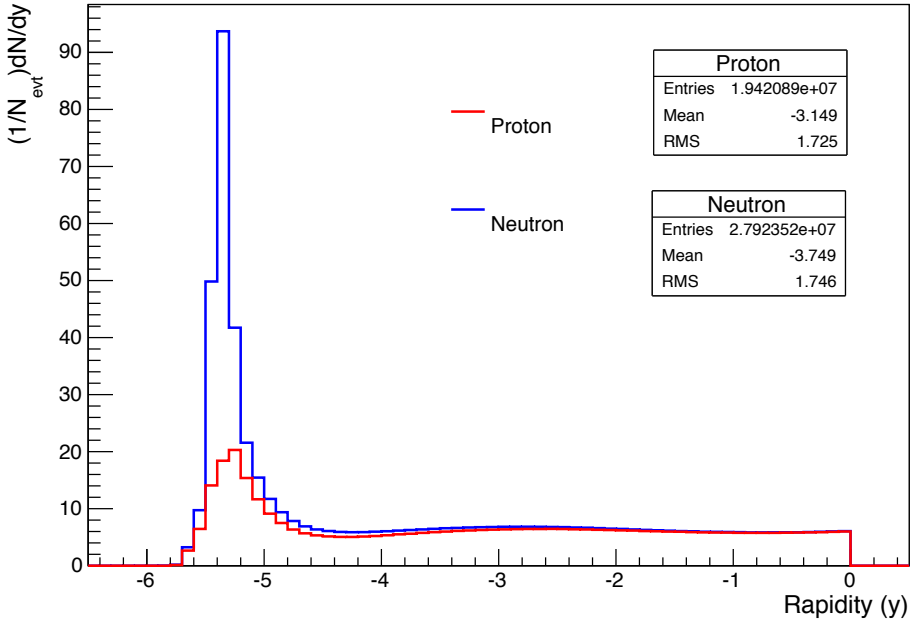
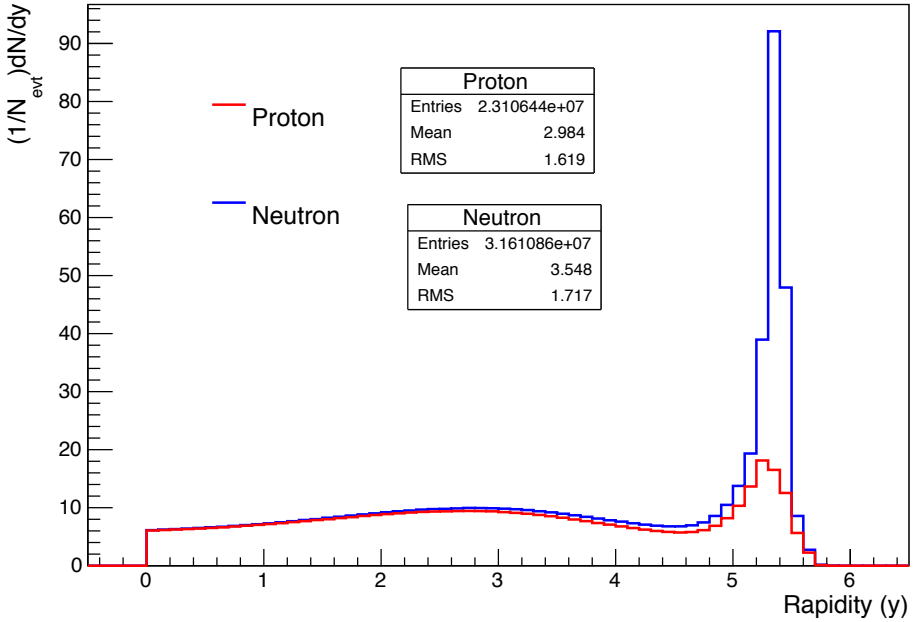
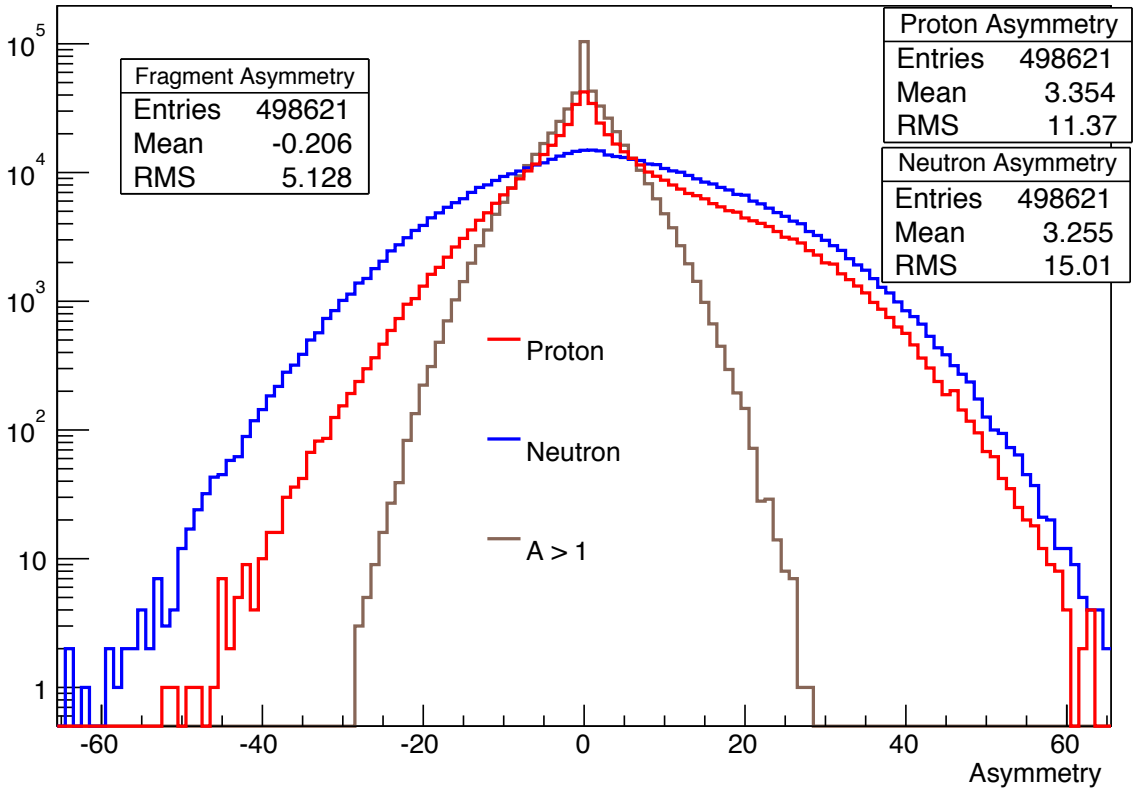
The problem





- Au+Au collision at C.M. energy 200 GeV is being simulated using DPMJET-III in FLUKA framework using SPECSOUR card.
- The primary particle kinematics are retrieved using FLKSTK. The collision of beam beam is at z = 0.
- Looking at rapidity distribution of protons and neutrons it seems asymmetric on either side of collision point in Z axis.
- More protons and neutrons are going in positive rapidity direction as compared to the ones going in negative rapidity direction.

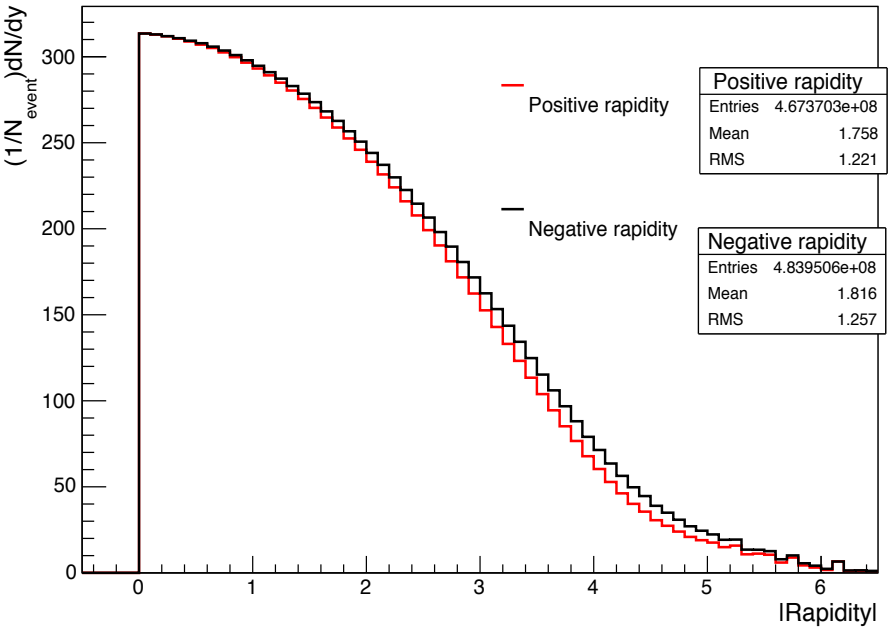
Difference in number of protons, neutrons and fragments on either side of interaction point (Asymmetry)



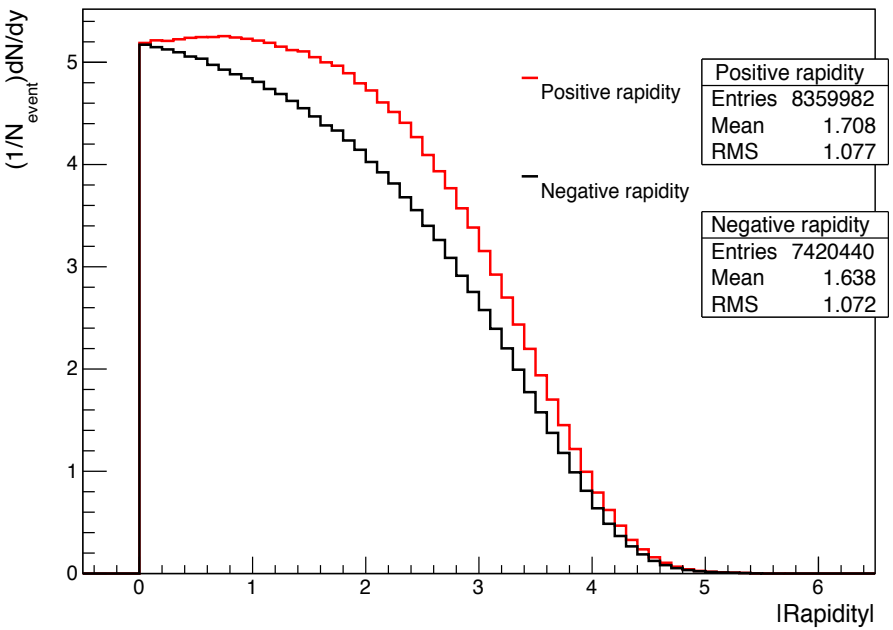
- Asymmetry in number of baryons are calculated by subtracting the number of baryons on one side of interaction point from that on other side of collision point in Z axis.
- Looking at asymmetry plot it's more clear that protons and neutrons are produced more on one side. However fragments are produced more on opposite side than that of p and n.
- Seems that fragmentation is biased in one direction of interaction point. Further the fragments probably evaporates p and n which moves in opposite direction populating more on other side of interaction point ?

Asymmetry in particles production asymmetry not from fragmentation

Particles not from fragmentation



Anti baryons (p-bar and n-bar)



- The production of particles not from fragmentation on either side of collision vertex is also asymmetric.
- Anti-protons and anti-neutrons show opposite trend in asymmetry as compared to other particles produced not from fragmentation.
- Why fragmentation and particle production asymmetric even though the collision system is symmetric and collision of beam-beam is at z = 0 ?