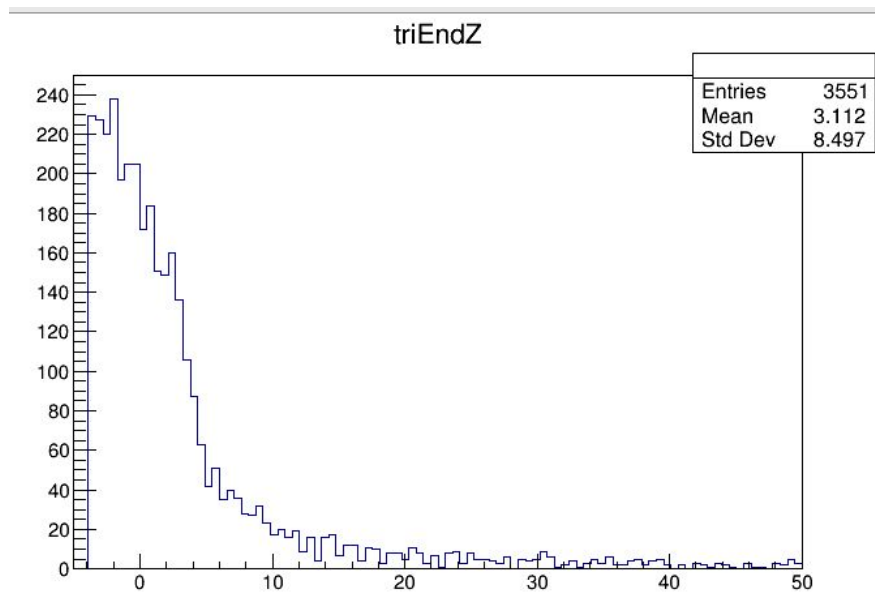


Truth z for 100 MeV A' with ctau = 10mm (output of the ntuple)

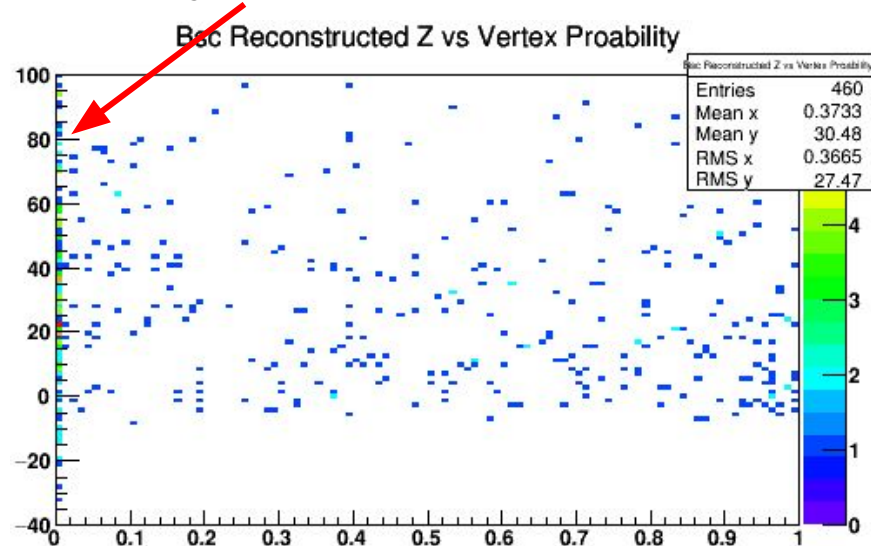
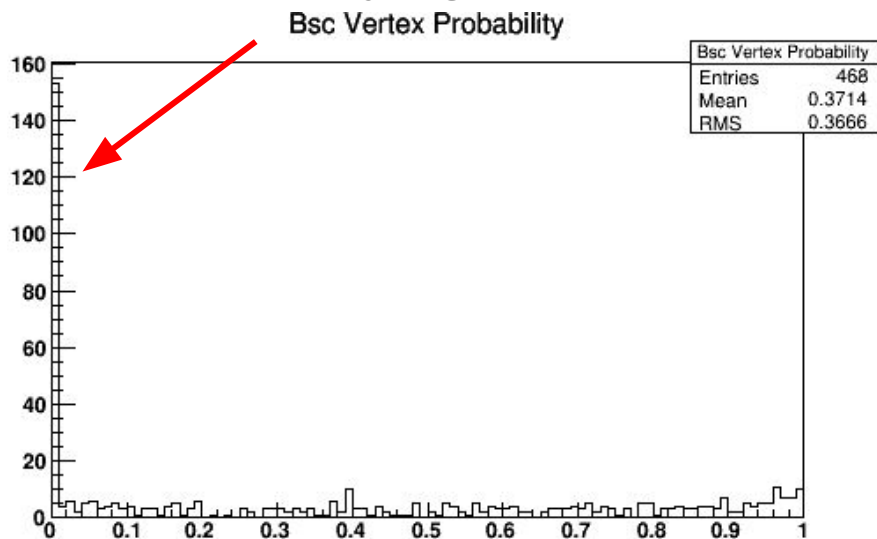
Clearly, this is not correct...



Beamspot Constrained Chisq Probability

Default cut of 0.00001 for vertex chisq probability in the MC. It disproportionately affects high z events

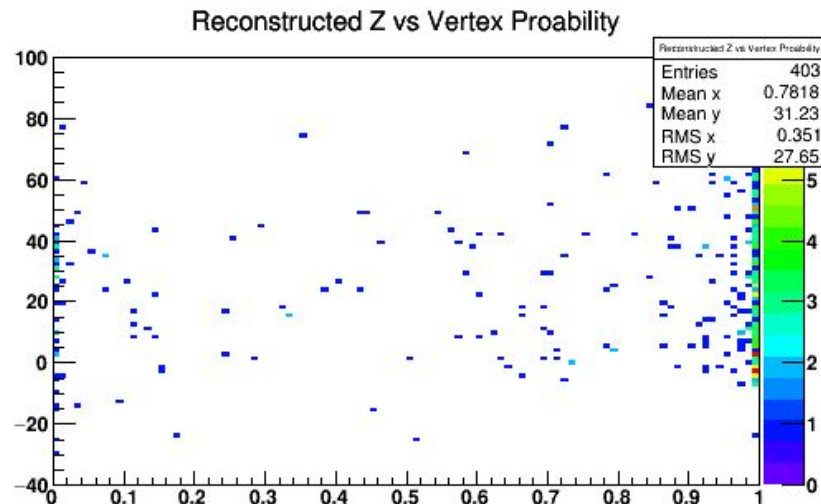
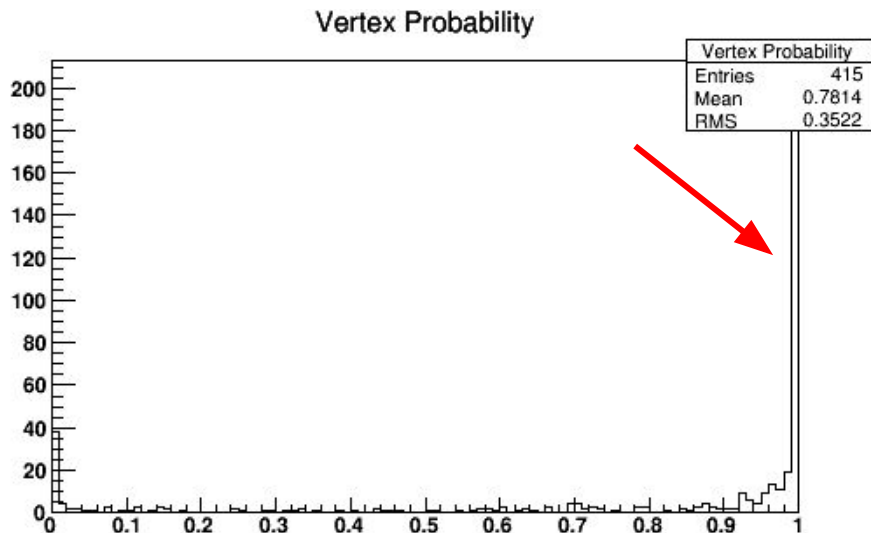
Left: probability. right: reconstructed z vs probability (for displaced A')



Unconstrained Chisq Probability

Large number of events close to a probability of 1...

Left: probability. right: reconstructed z vs probability (for displaced A')



Effects of this Cut

Tuple maker requires a given vertex to have an unconstrained AND beamspot constrained for it to save the vertex (no such requirement for the lcio)

Unconstrained vertices in data (lcio) are probably unaffected

High z (both good signal and background) in beamspot constrained collection is significantly impacted

High z V0s in the tuple are significantly affected because of the requirement above

Very little effect on the core of pass4 data (>99%), but obviously this is important to fix

Recommendation - simply remove the cut (or set it to -1 or something)

(Sorry, very low stats) Truth z for different beamspot constrained probability cuts for a displaced A'

