



He Monte Carlo truth studies

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Francesco Rossi, Prof. P. Zuccon



Updates:

The goal:

Identify different background (*inelastic* and *large angle scattering*) samples using Monte Carlo truth.

Work strategy for inelastic scattering:

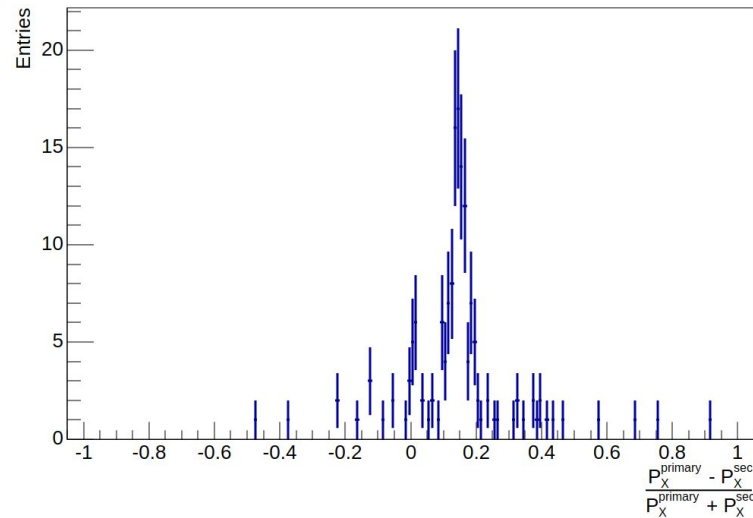
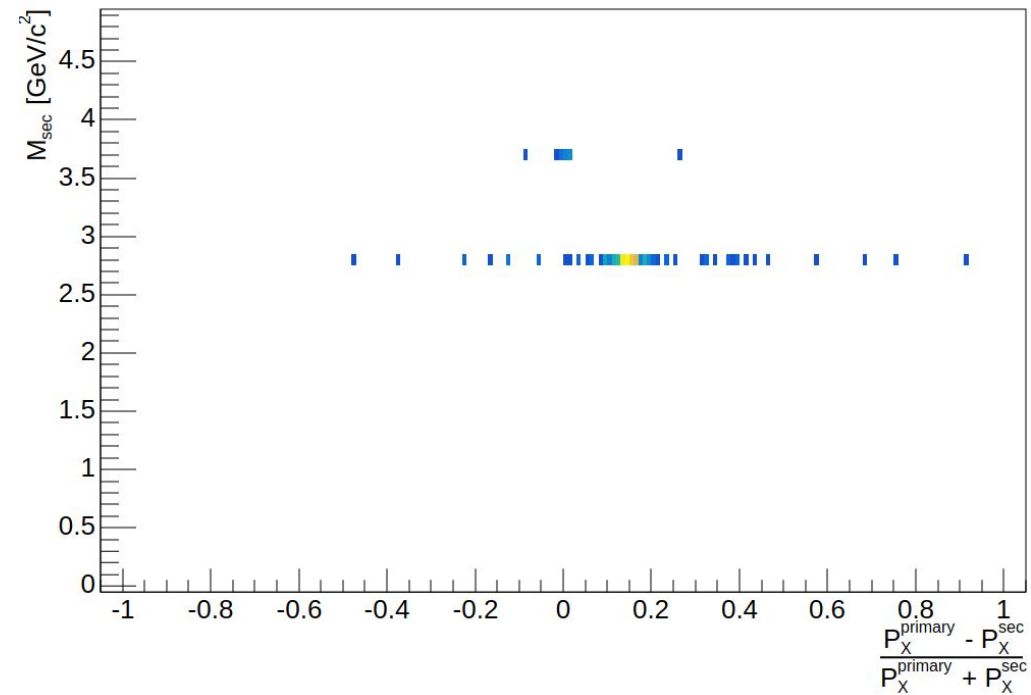
1. Only daughters of the primary are considered (Parent ID = 1).
2. Check the generation Z coordinate of the secondary.
3. Look after the secondary with the $|P|$, more consistent with that of the primary.
4. Require a charge = 2 secondary.

Work strategy for large angle scattering:

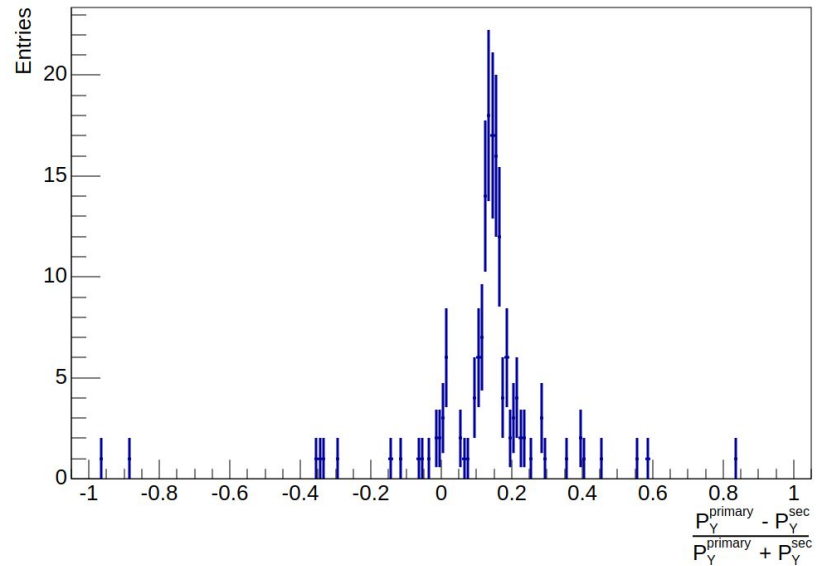
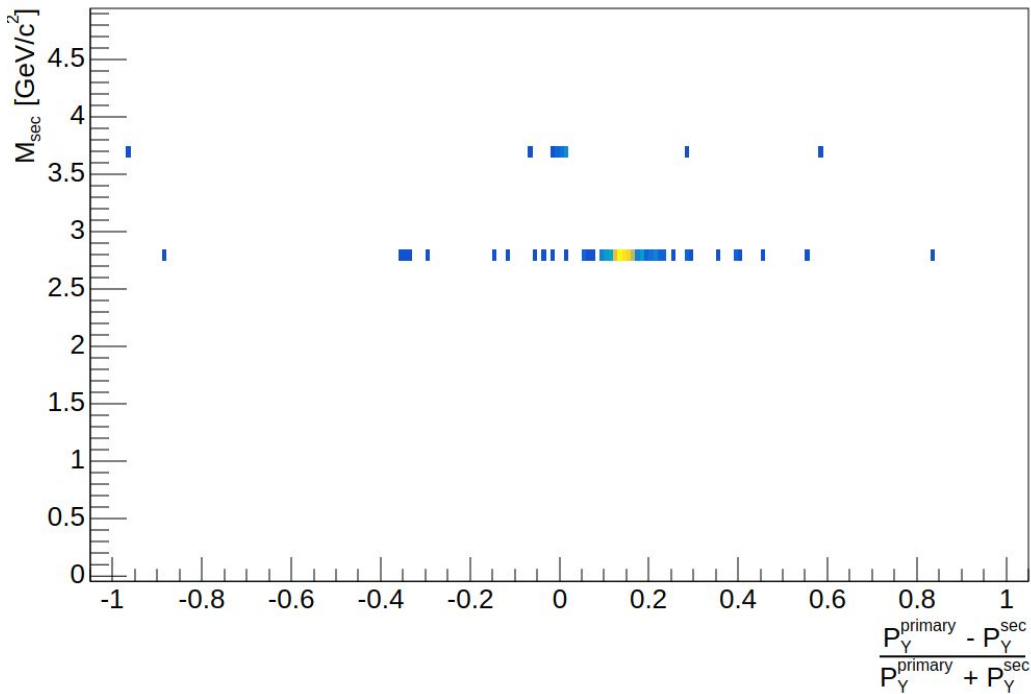
5. Follow the progression of the primary inside the detector.
6. Compare the angle with the x-axis at different checkpoints.

file **1683723255.00000001.root** with **NAIA v1.1_hotfix**.

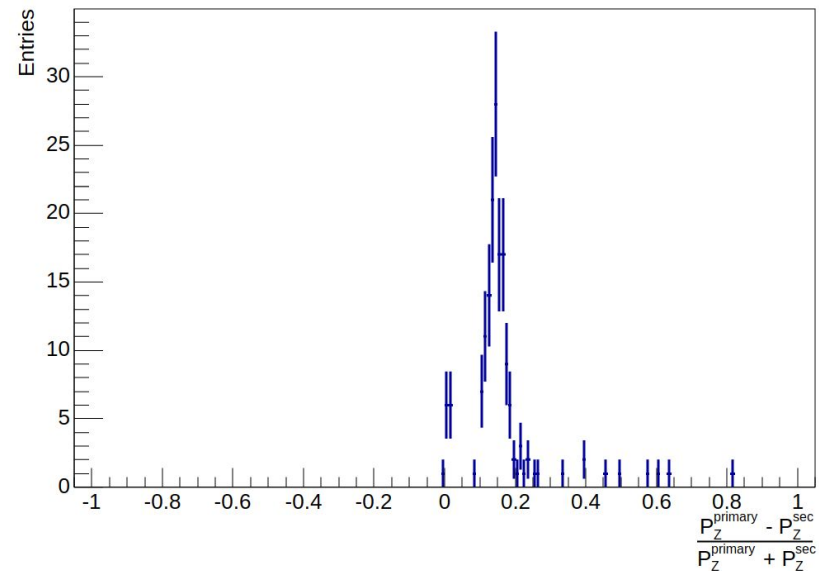
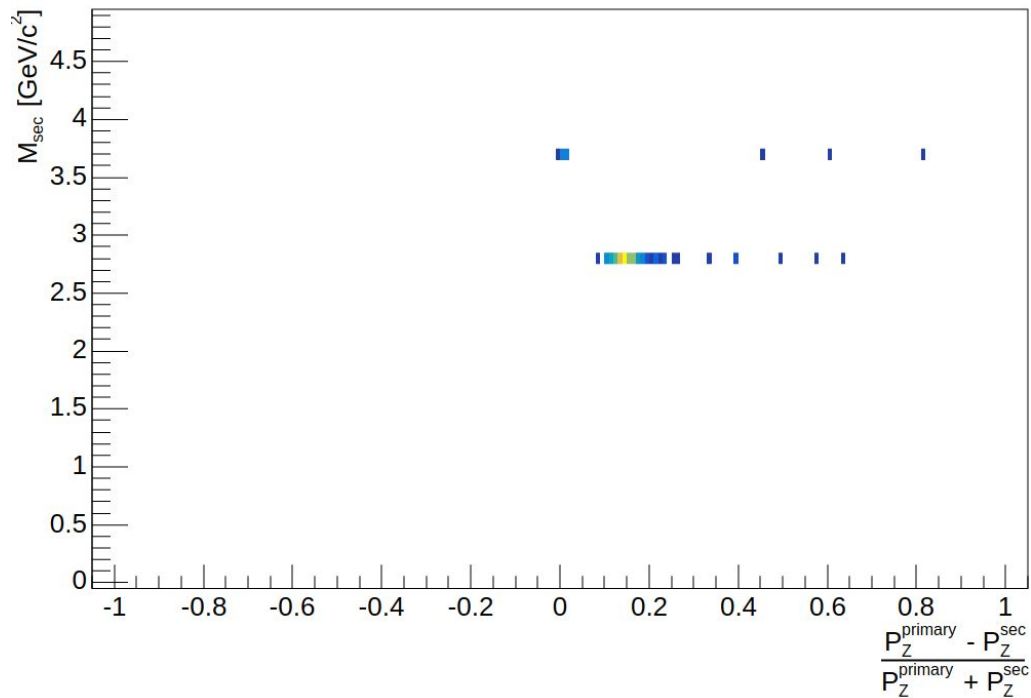
Inelastic scattering



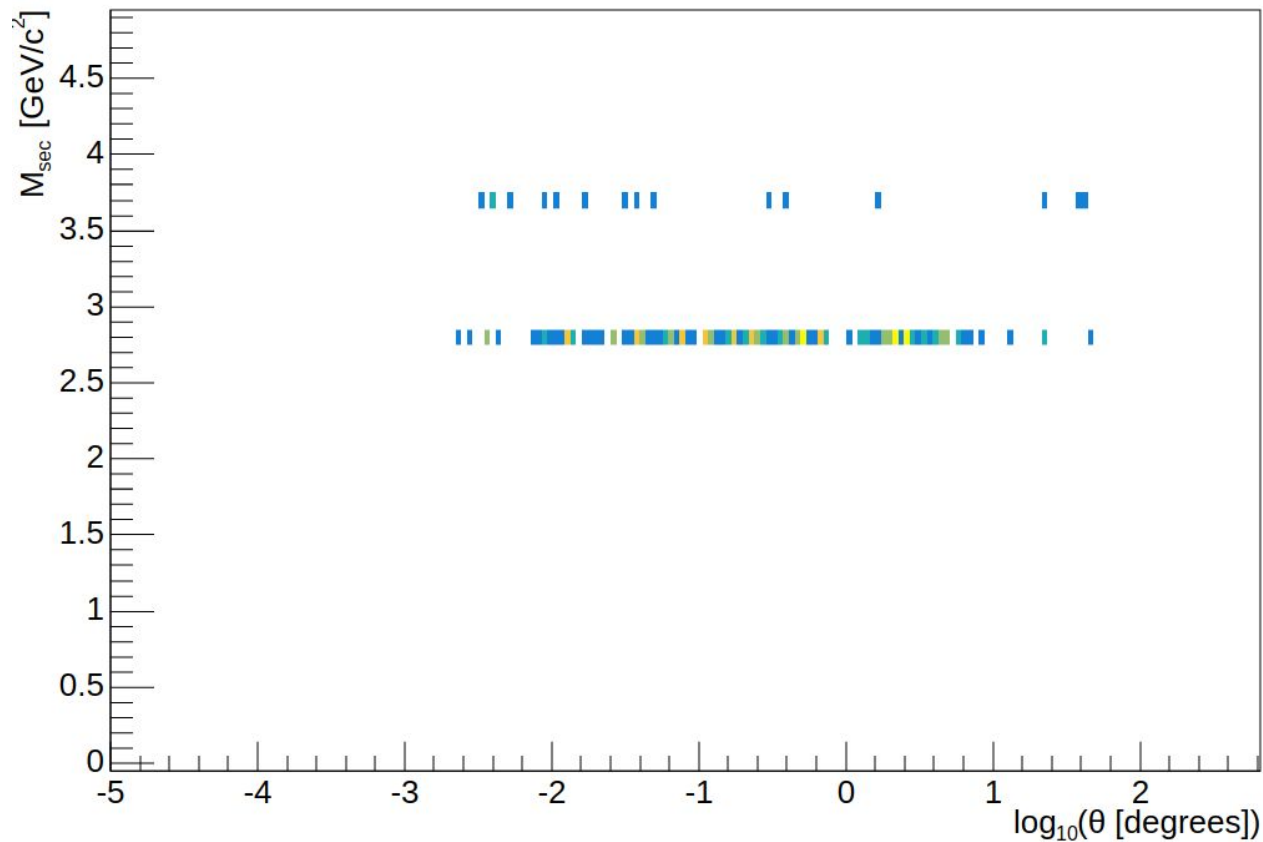
Inelastic scattering



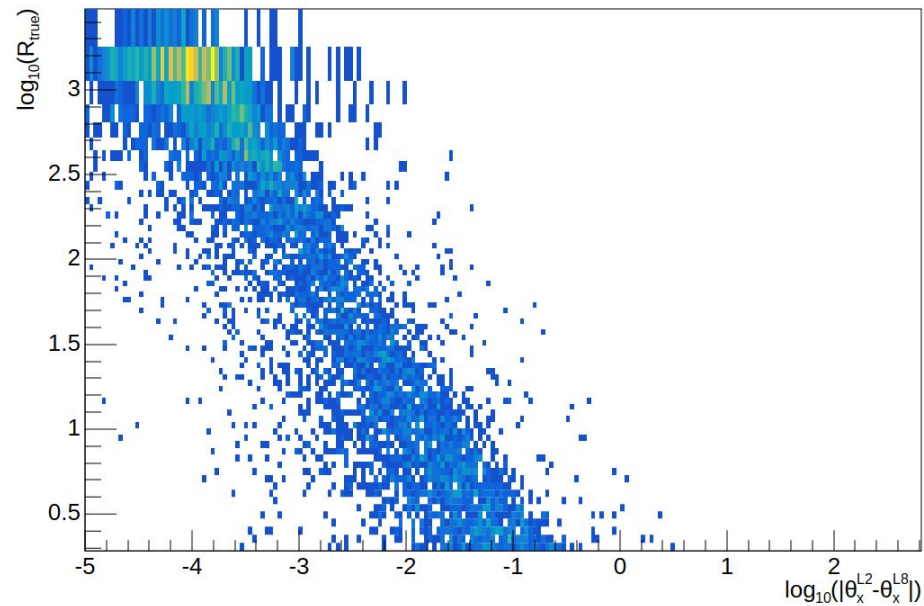
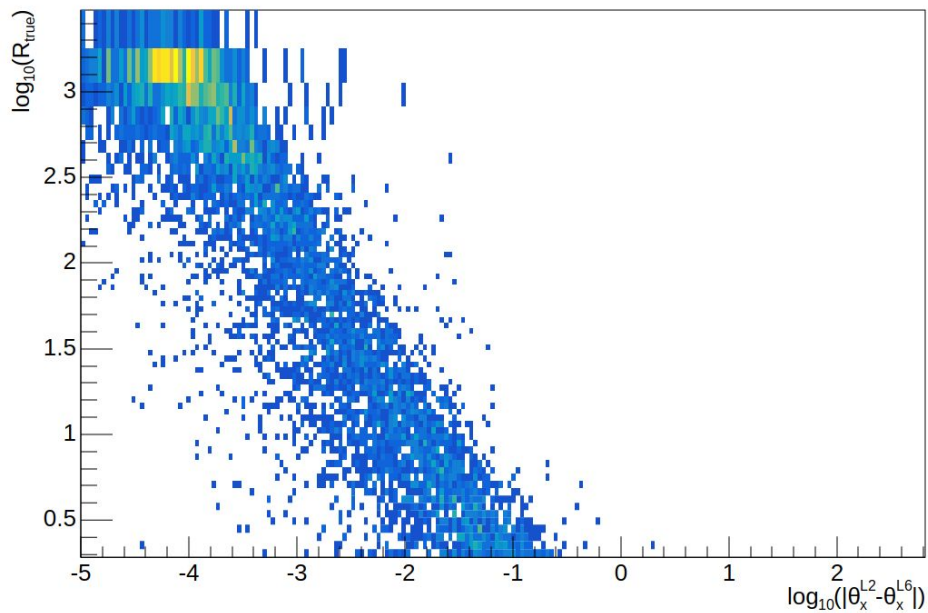
Inelastic scattering



Inelastic scattering



Large angle scattering



Next step



- Increase statistics.
- Look at the reconstructed rigidities (charge sign).
- Find “reconstructed” variable to identify *inelastic* and *large angle scattering* events

- Implement root PDGparticle class with nuclei PDG codes

