

# 3D clustering fix

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# Fix

- **Discovered some small bug in C3D cone algorithm implementation**

[https://github.com/PFCal-dev/cmssw/blob/hgc-tpg-devel-CMSSW\\_10\\_2\\_0\\_pre5/L1Trigger/L1THGCal/src/be\\_algorithms/HGCalMulticlusteringImpl.cc#L97](https://github.com/PFCal-dev/cmssw/blob/hgc-tpg-devel-CMSSW_10_2_0_pre5/L1Trigger/L1THGCal/src/be_algorithms/HGCalMulticlusteringImpl.cc#L97)

Affects cases where several C3Ds in the making are found within the dR clustering distance of the C2D considered

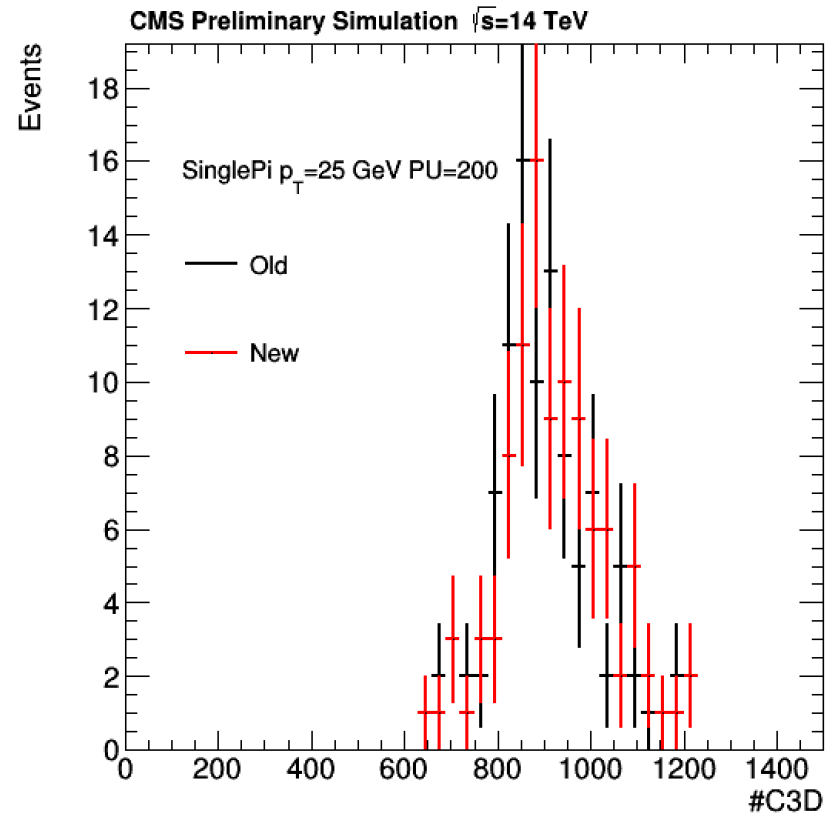
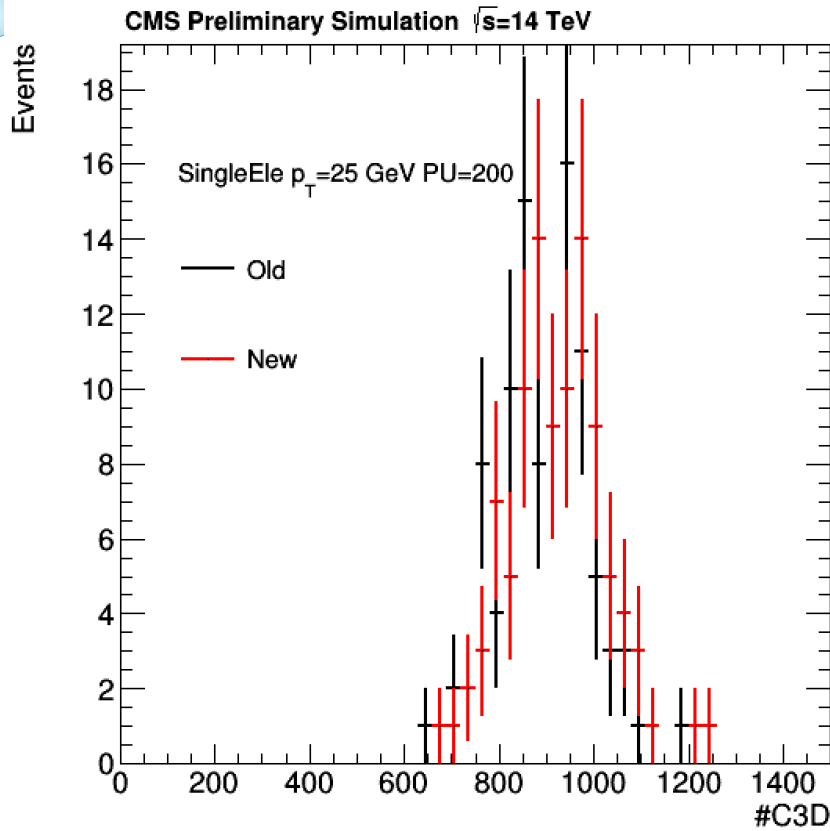
C2D should be added to the closest but effectively added to the first because minDist defined as unsigned instead of double

- **Fix available in**

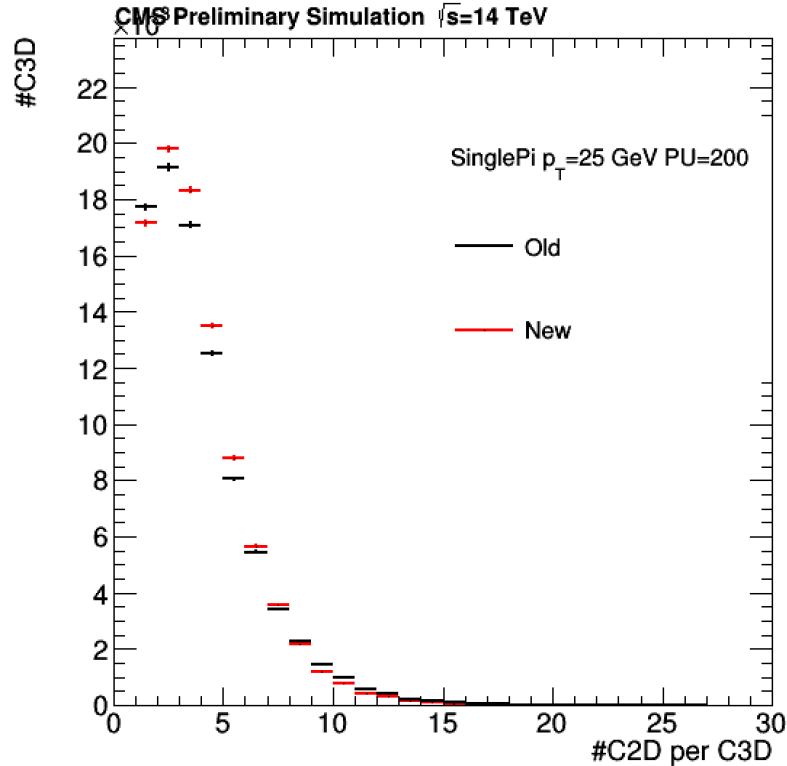
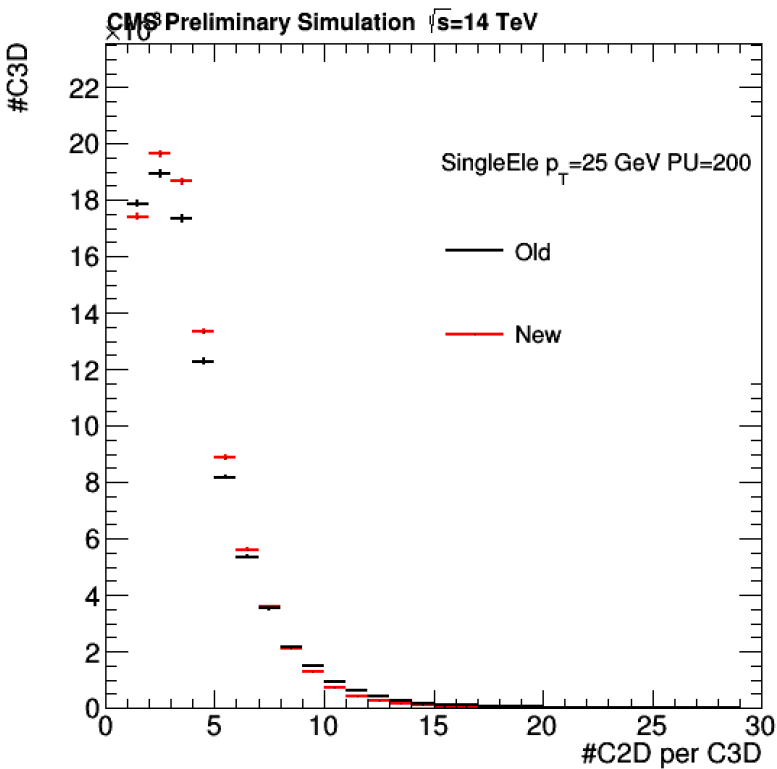
- **Impact expected to be small:** not that often that several C3Ds are within dR clustering distance of a C2D

- **Quickly checked on basic distribution of 100 events of SingleEle + SinglePi**  
**pT=25 GeV PU200**

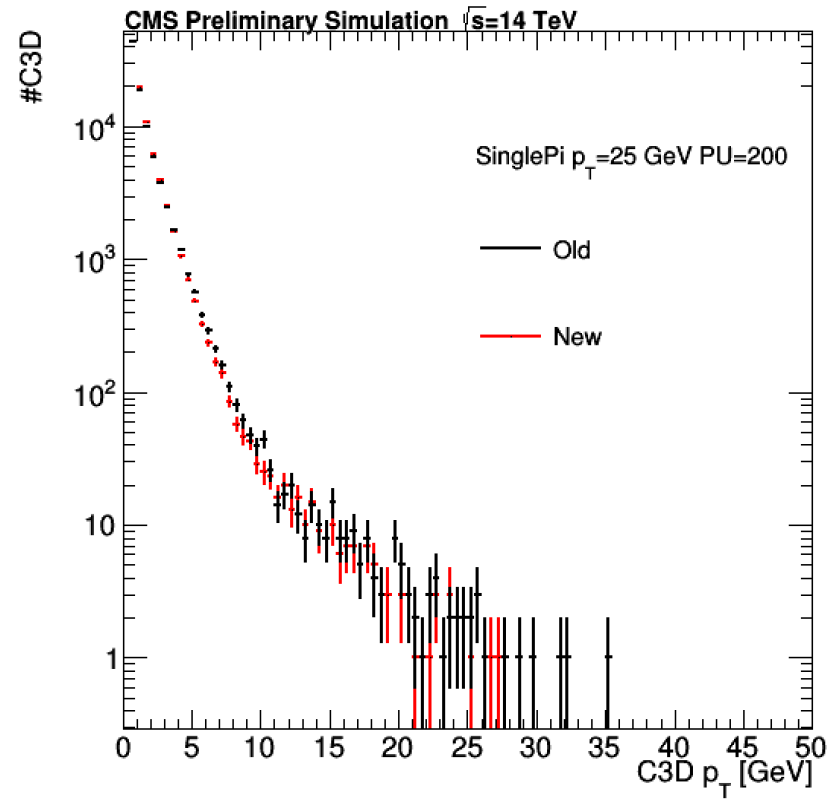
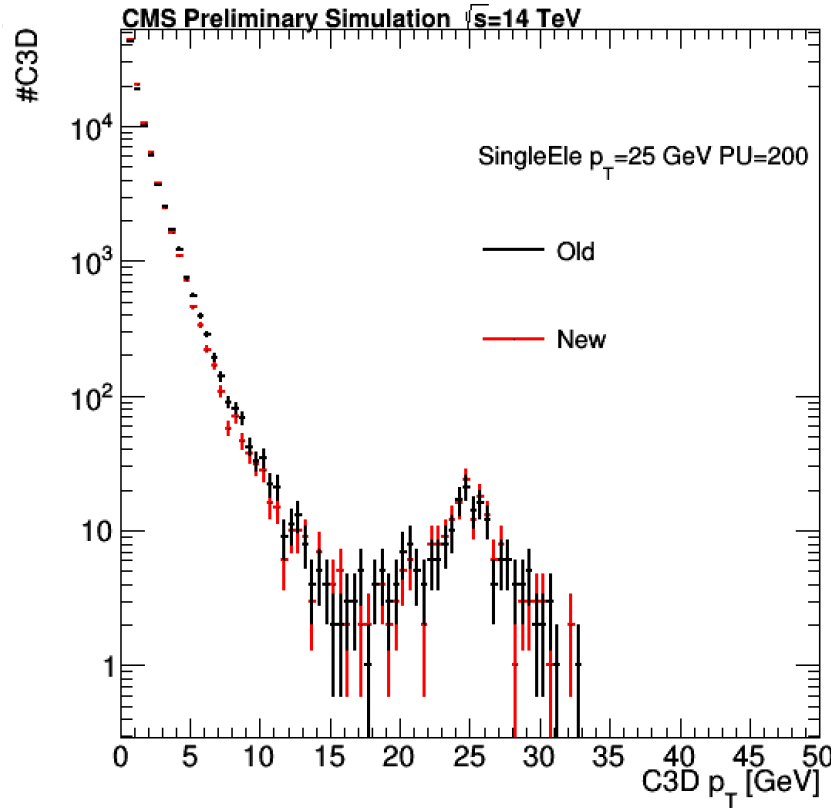
# Number of C3Ds



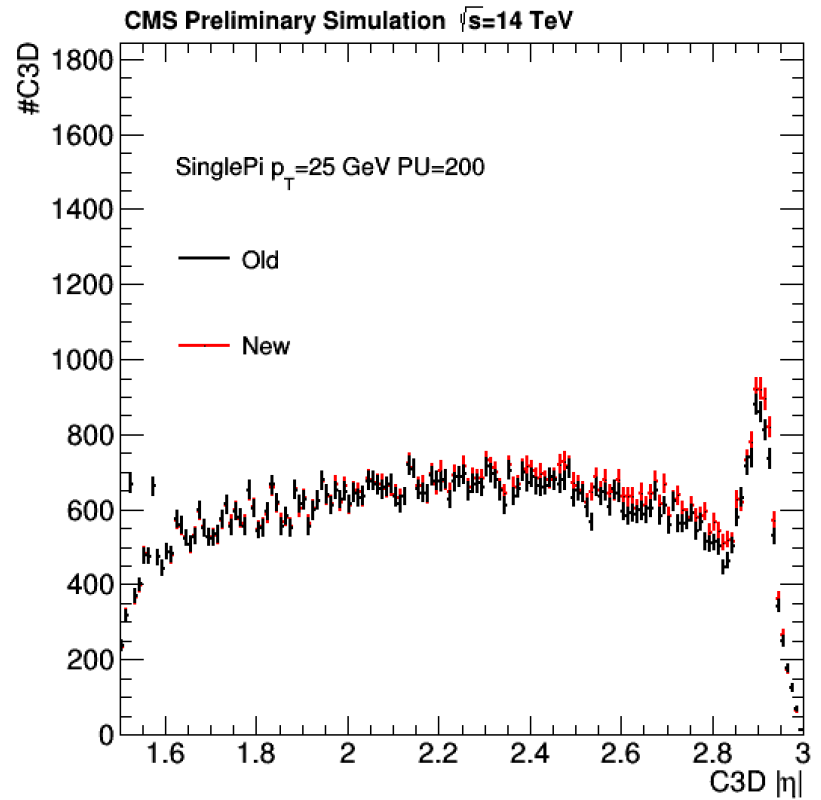
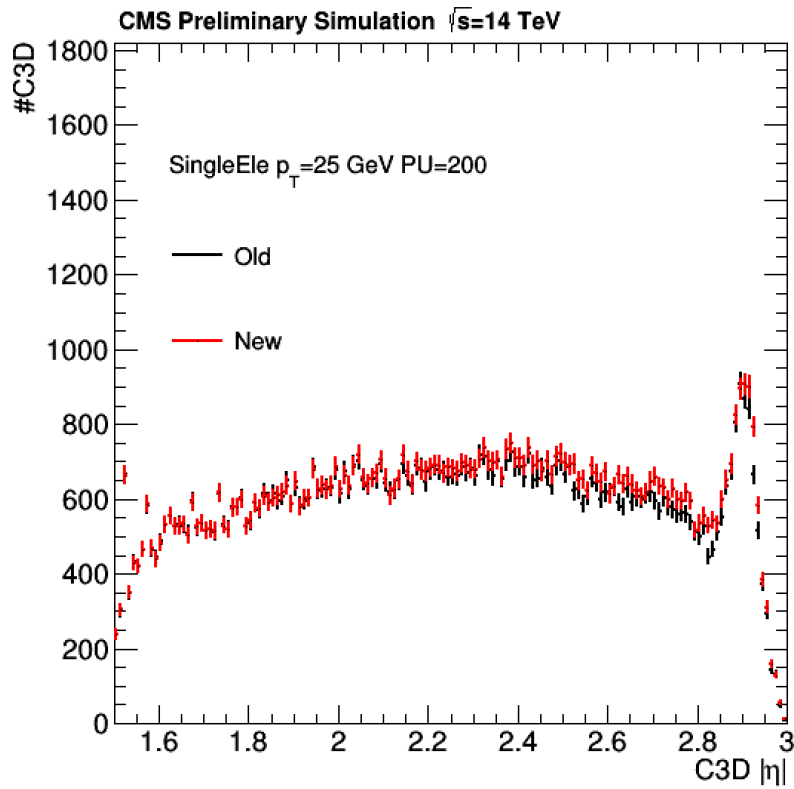
# Number of C2Ds per C3D



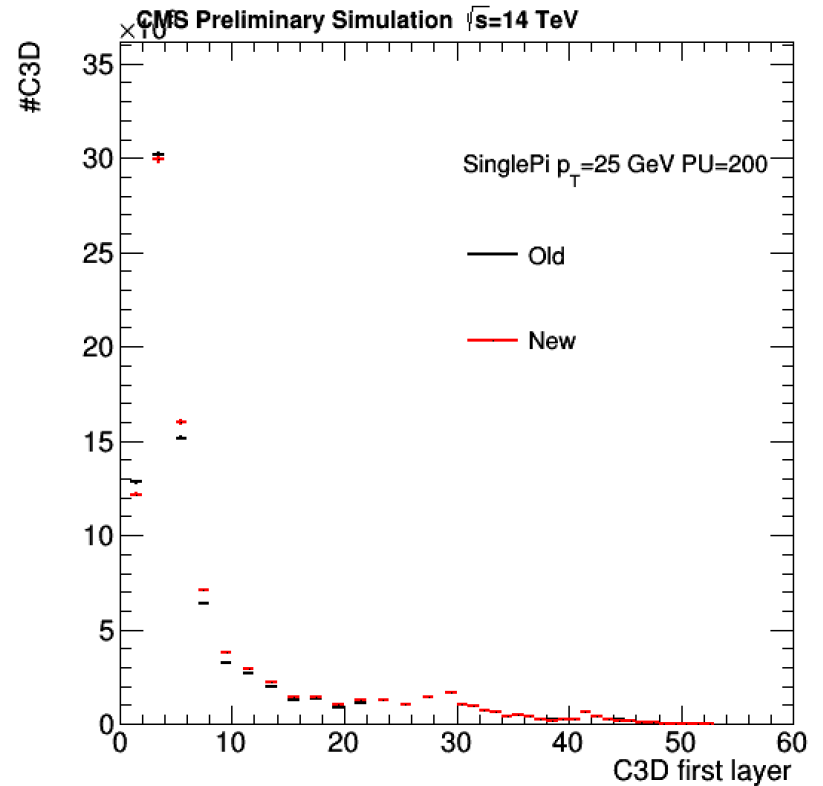
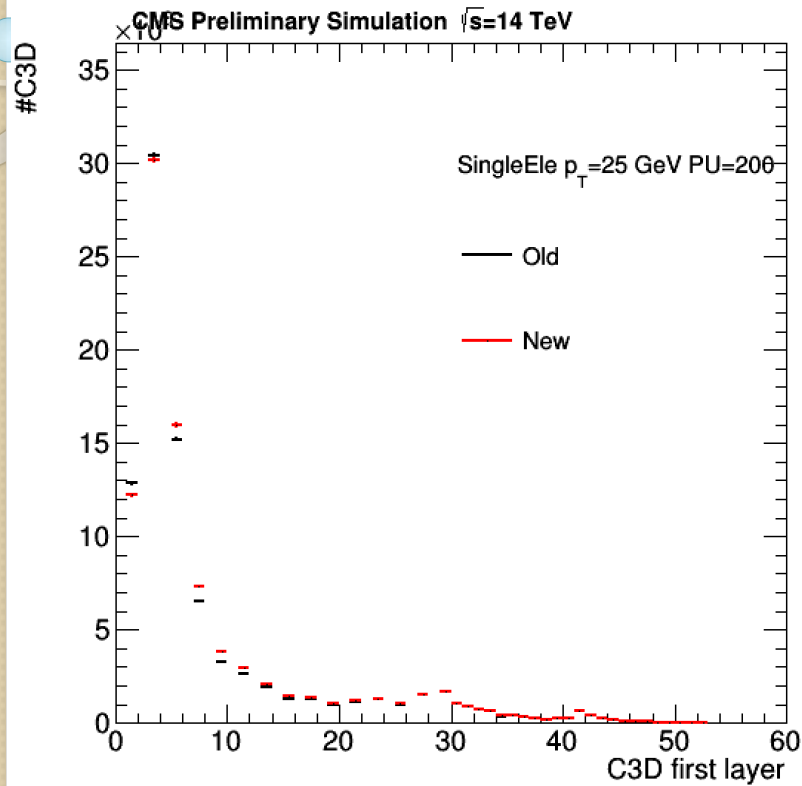
# pT



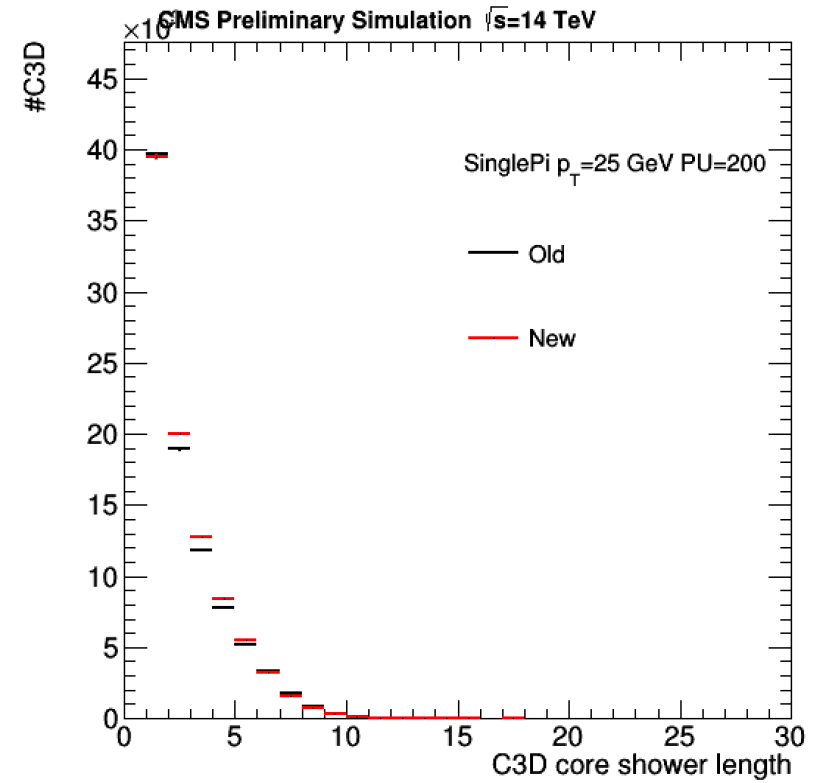
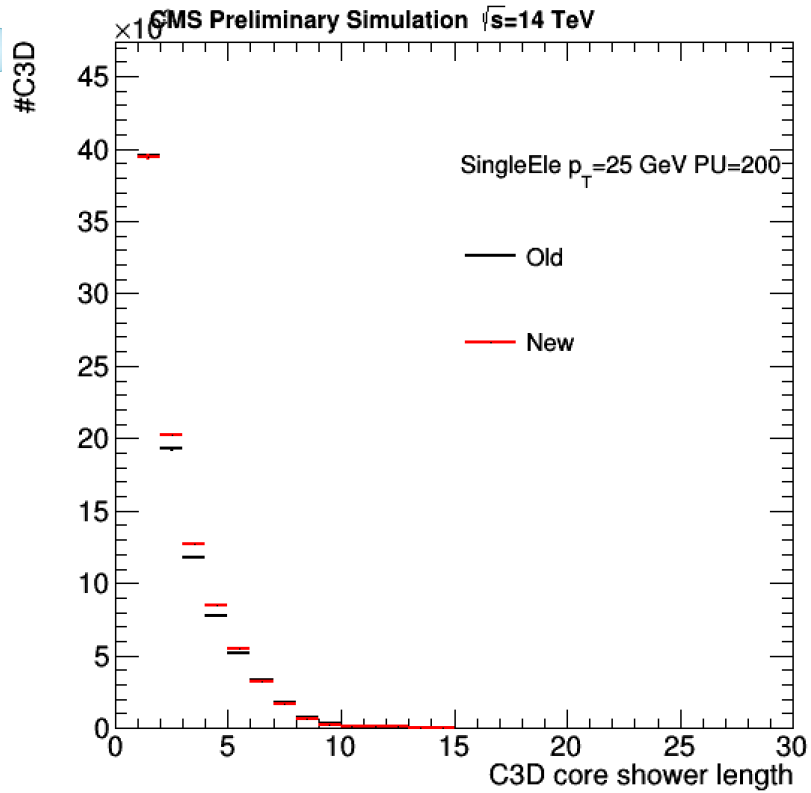
# eta



# First layer

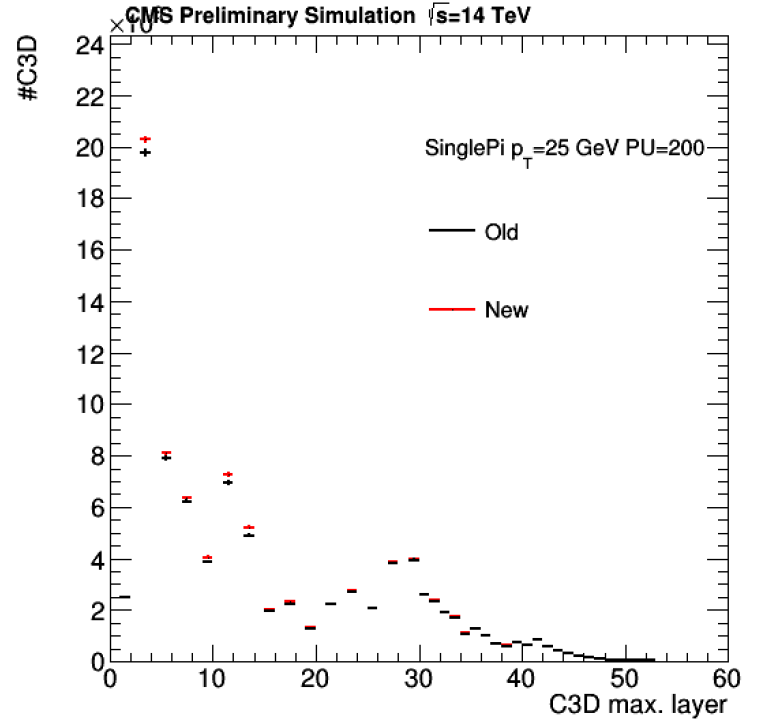
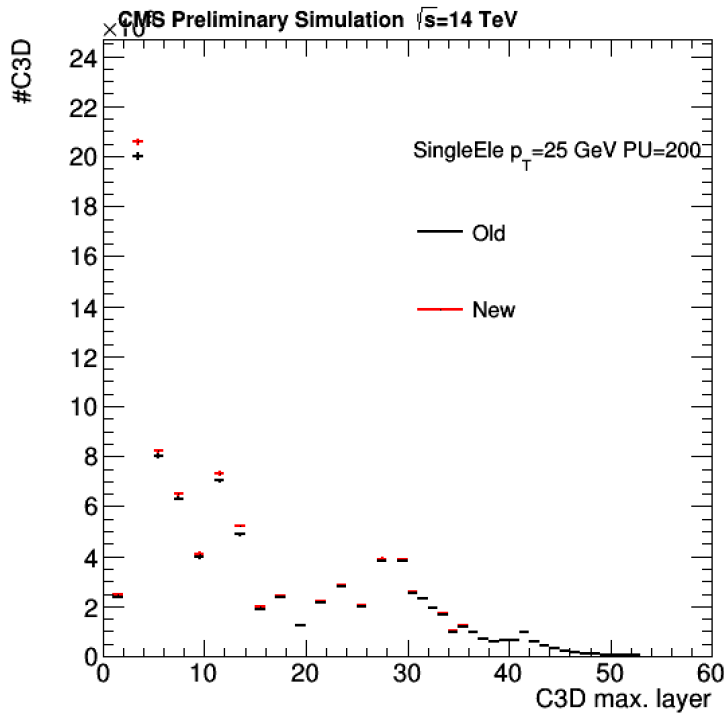


# Core shower length





# Max. layer



# Srr mean

