New IPstrong MC: Compton Comparison Plots

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24th November 2020

HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

DESY.

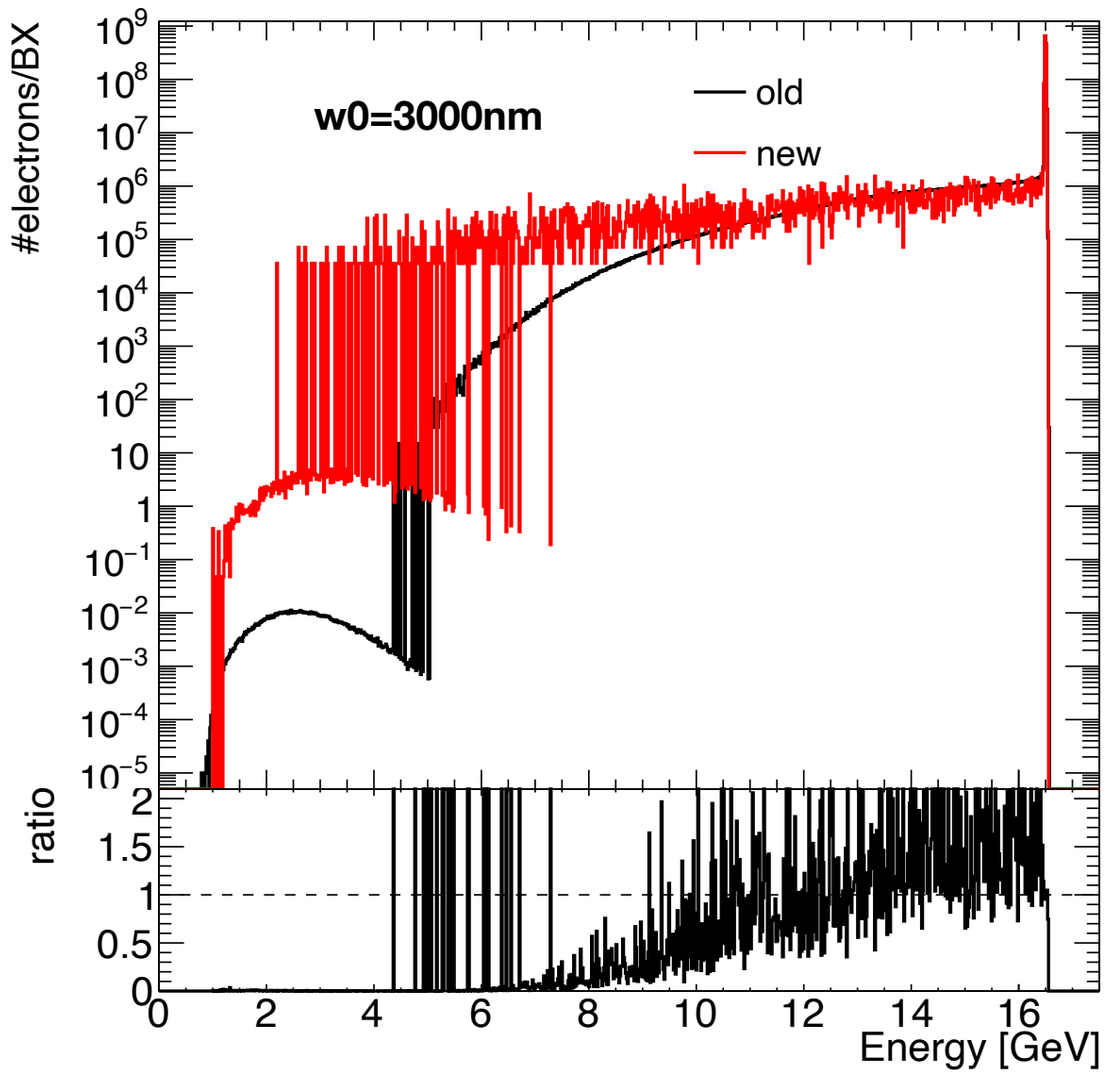
Overview

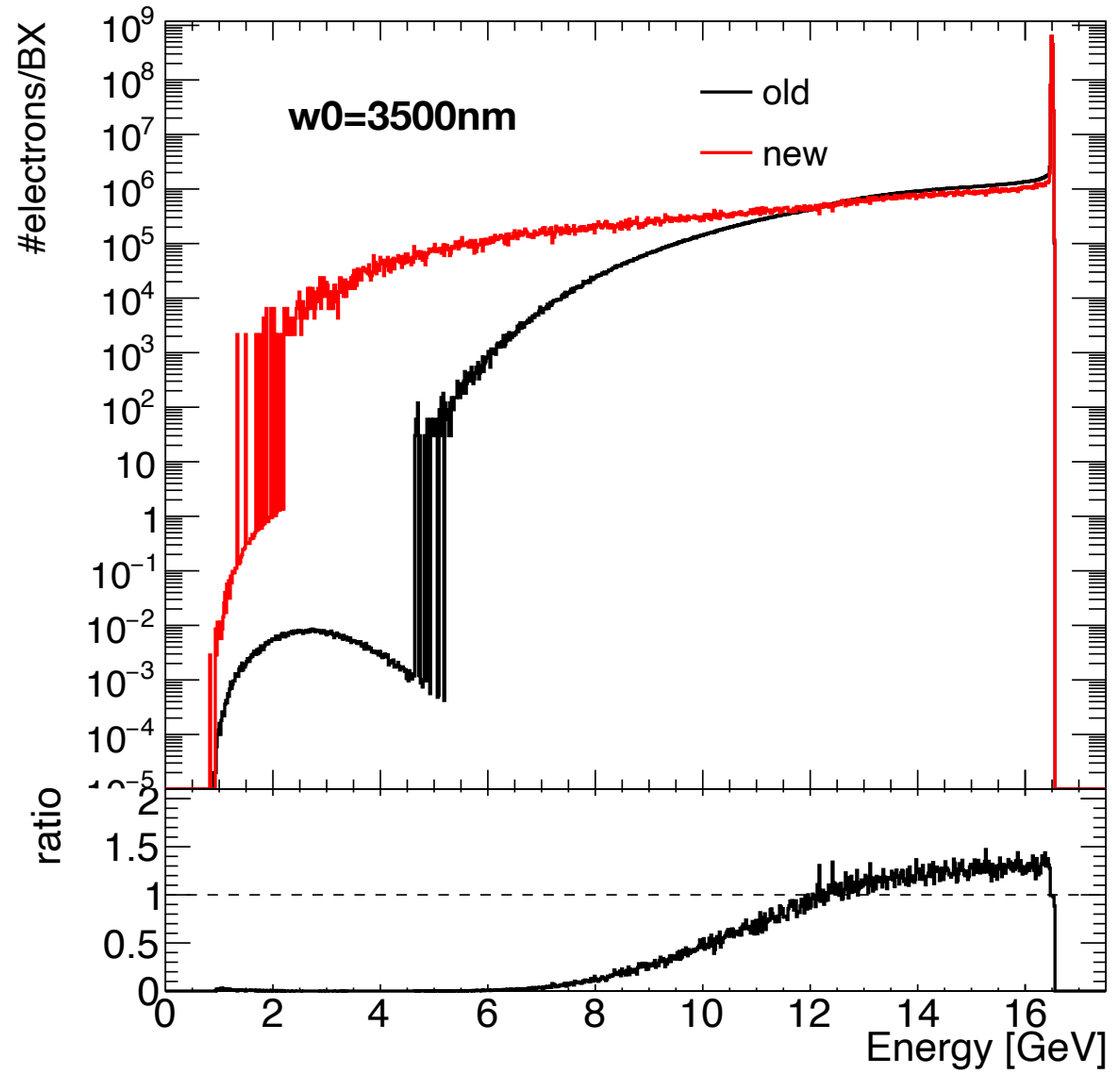
- Comparing Compton spectra for Tonys newest MC with earlier version
- Reproducing results plots for these
- Paths to the samples for comparison:

NEW: /nfs/dust/luxe/group/MCProduction/Signal/uncompressed/IPstrong_V1.1.00/JETI40/e_laser_provisional_10xi^3_HICS/16.5GeV/

OLD: /nfs/dust/luxe/group/MCProduction/Signal/uncompressed/IPstrong_V1.1.00/JETI40/e_laser/16.5GeV/

Generated Electron Energy

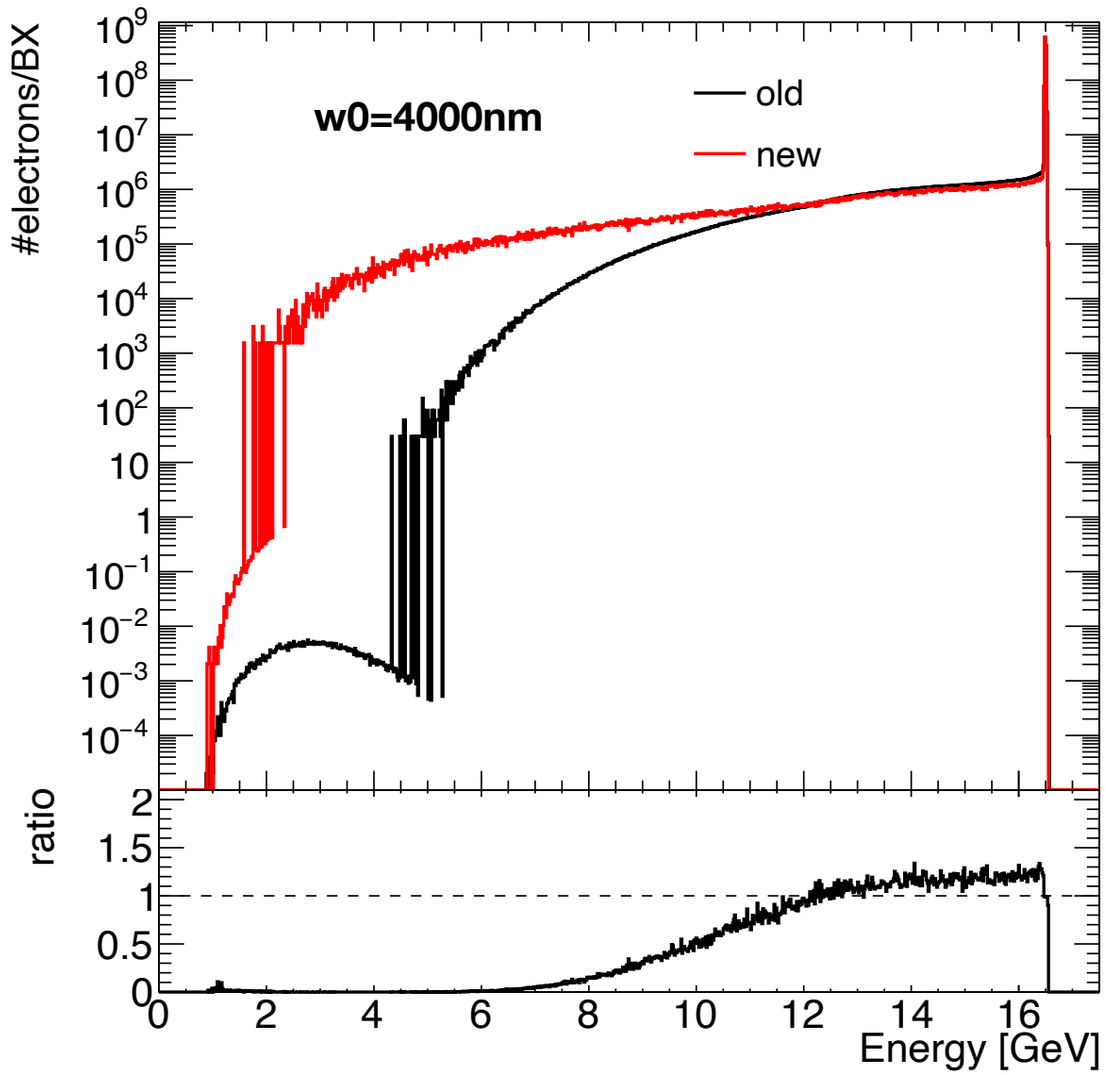


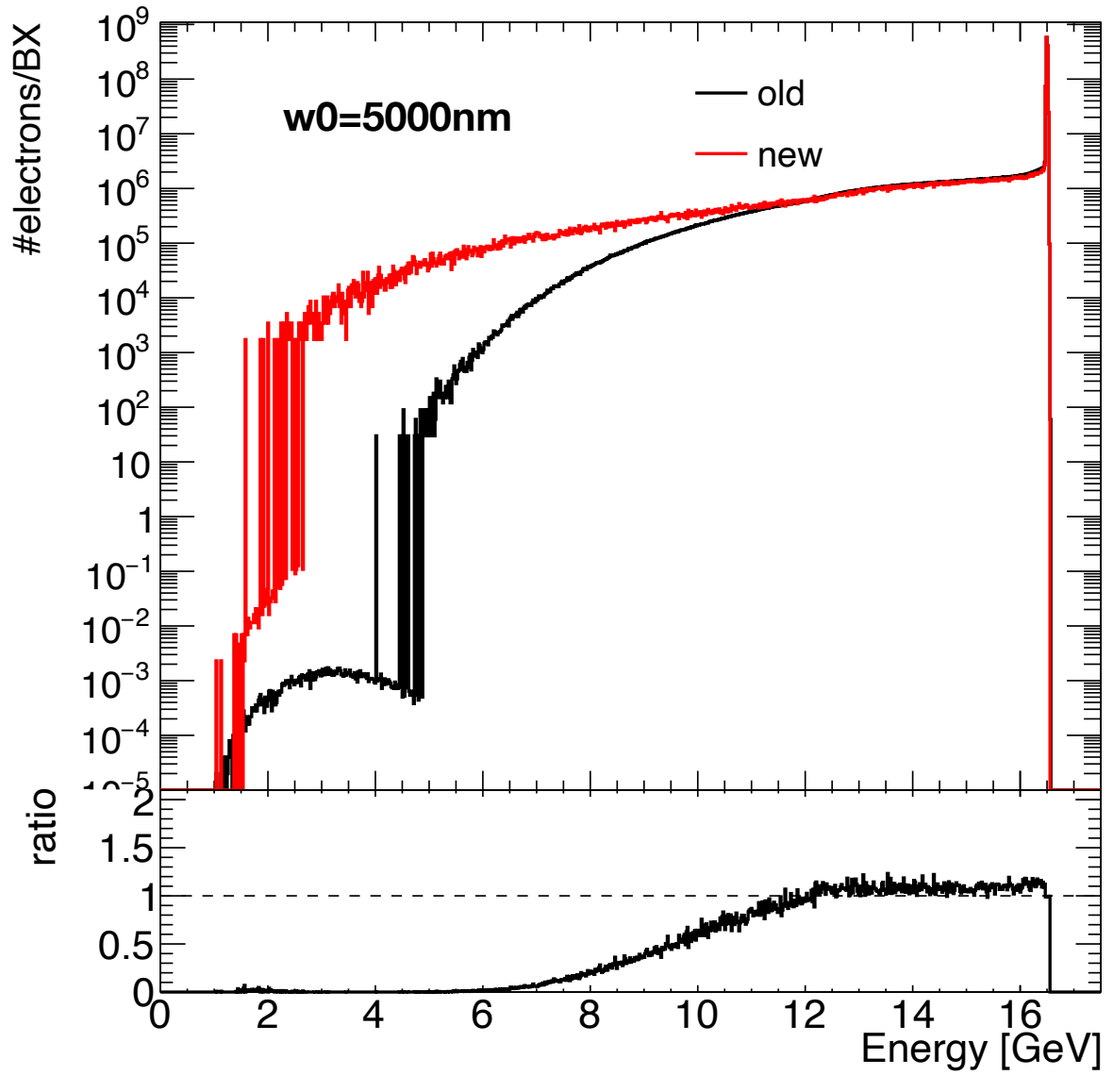


NEW: /nfs/dust/luxe/group/MCProduction/Signal/uncompressed/IPstrong_V1.1.00/JETI40/e_laser_provisional_10xi^3_HICS/16.5GeV/

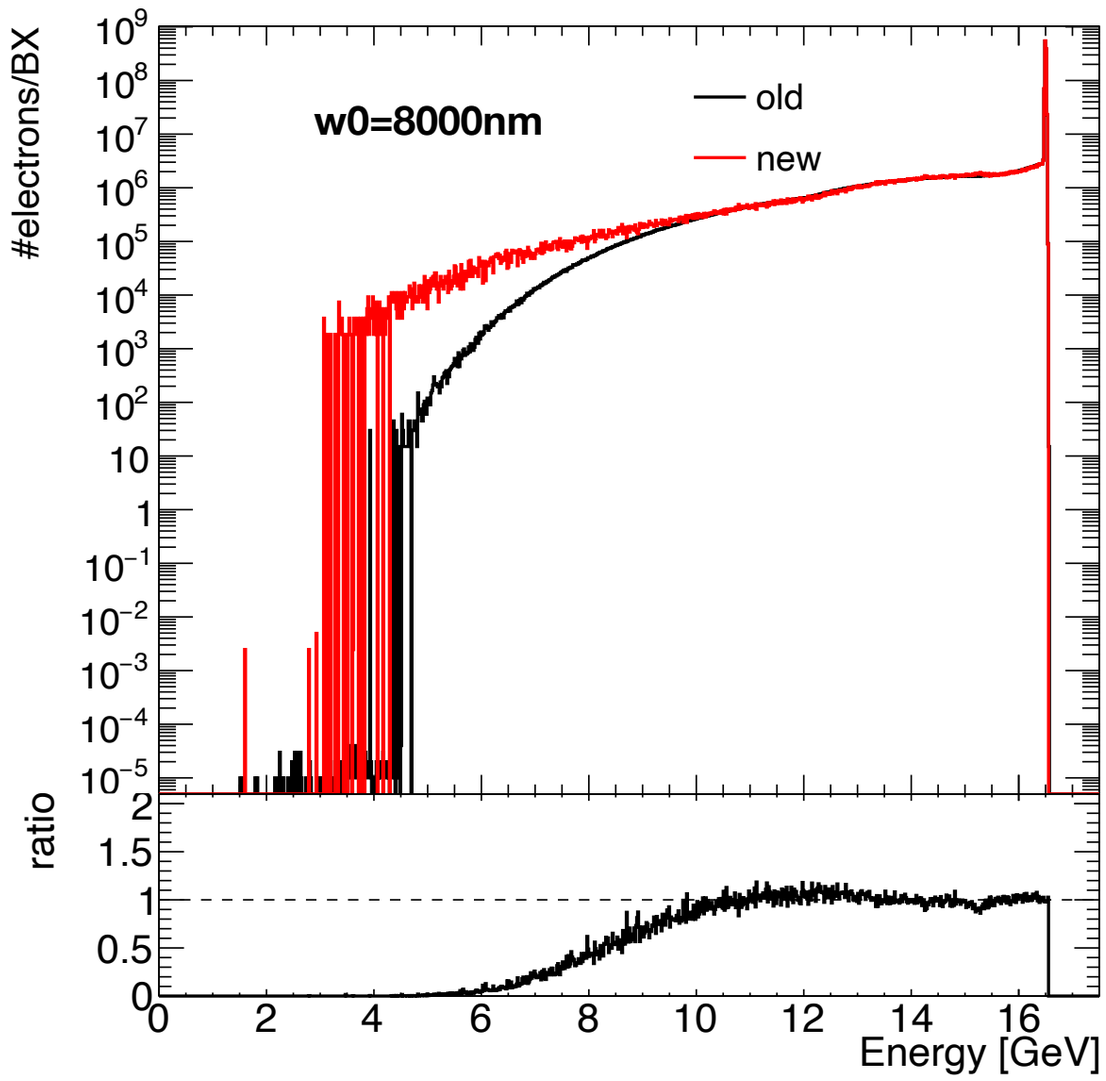
OLD: /nfs/dust/luxe/group/MCProduction/Signal/uncompressed/IPstrong_V1.1.00/JETI40/e_laser/16.5GeV/

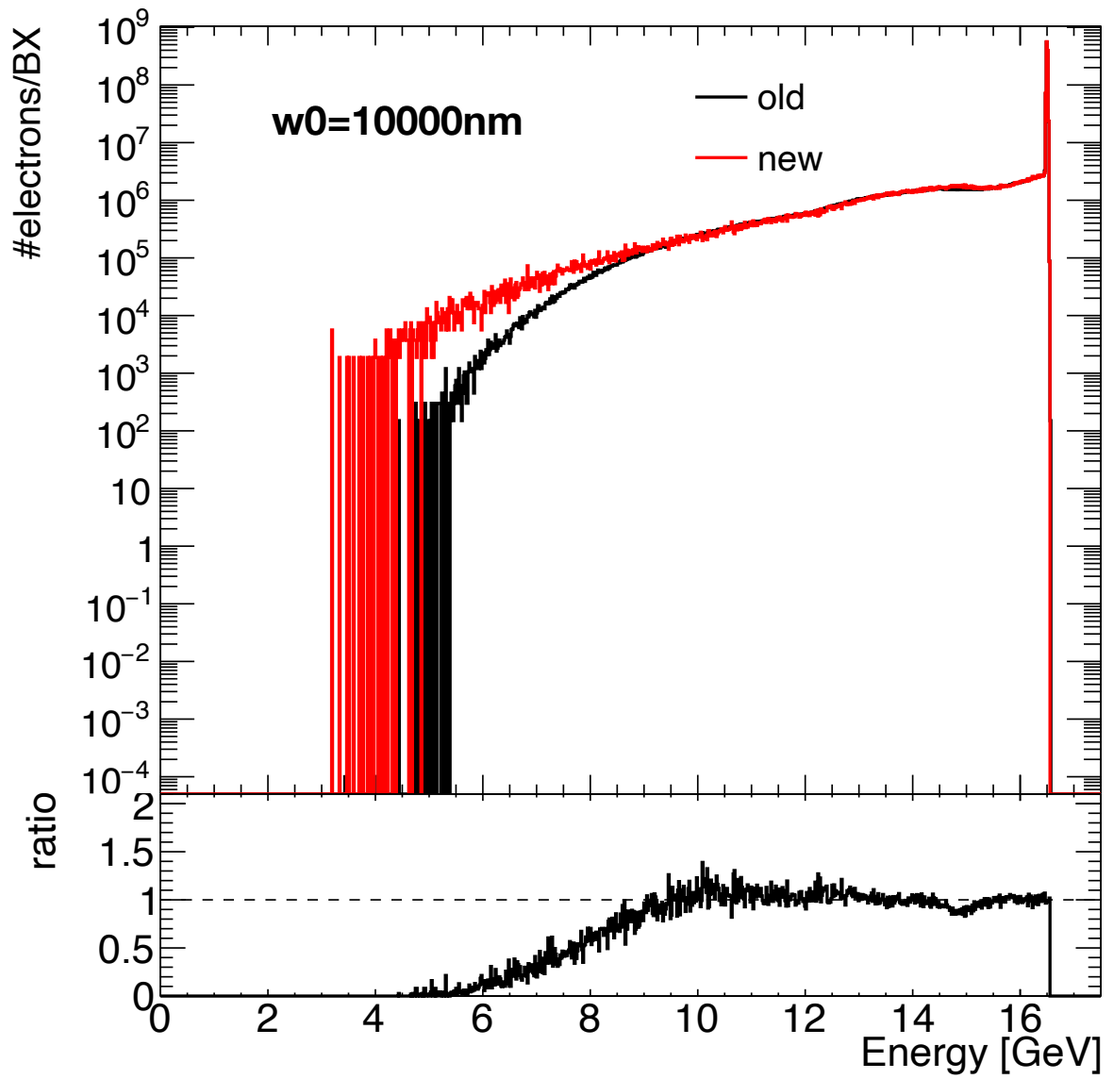
Generated Electron Energy



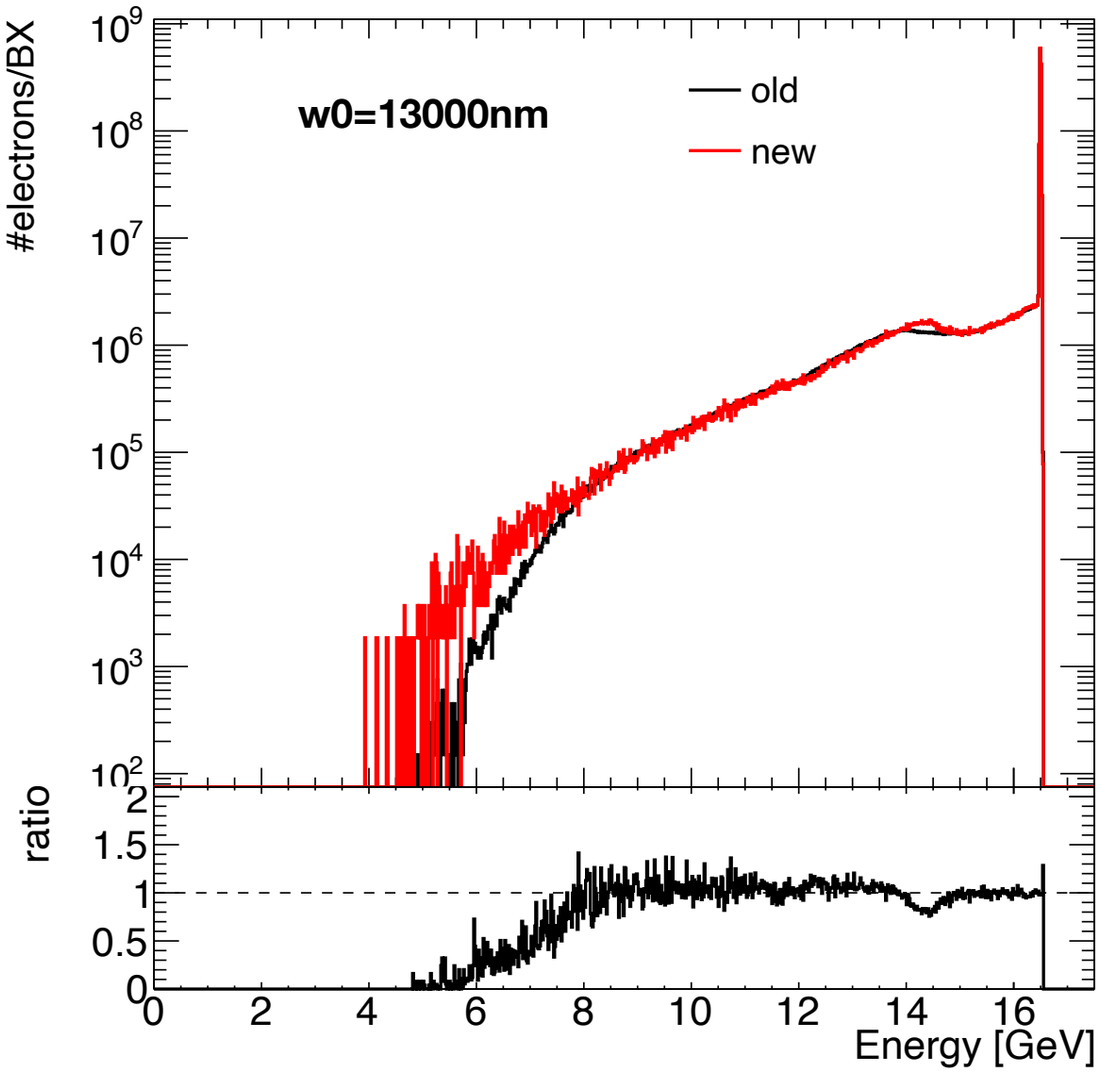


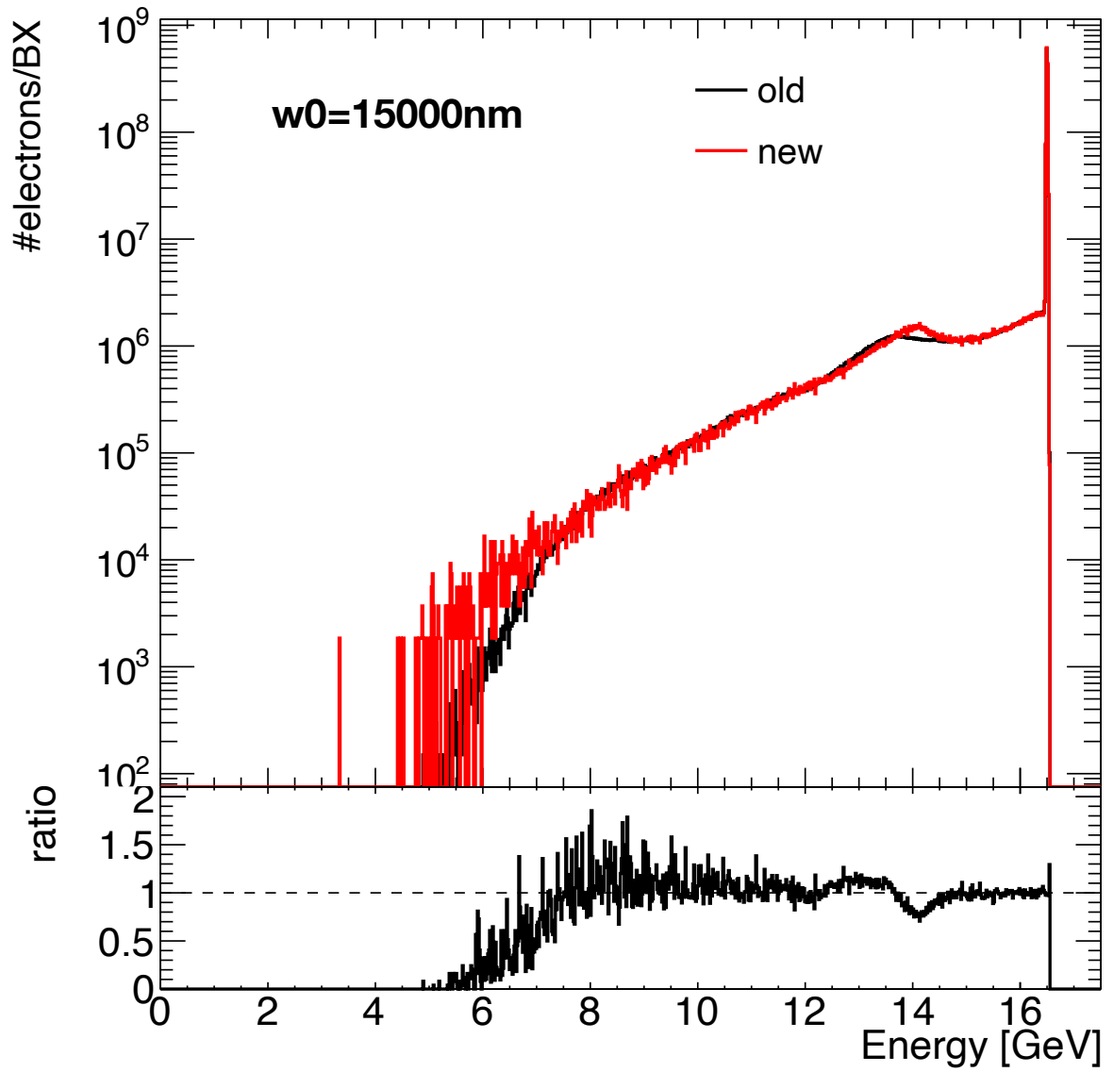
Generated Electron Energy



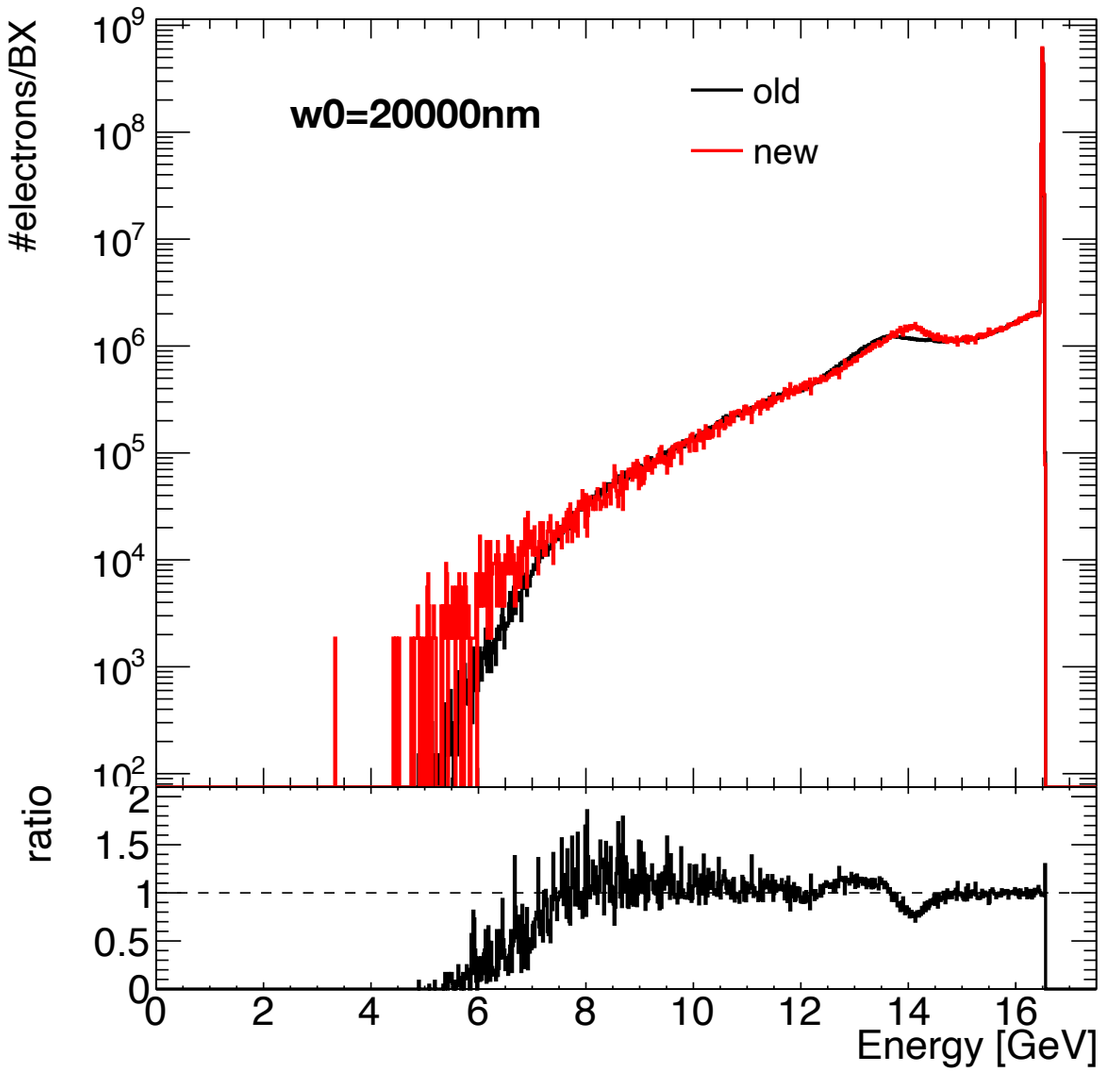


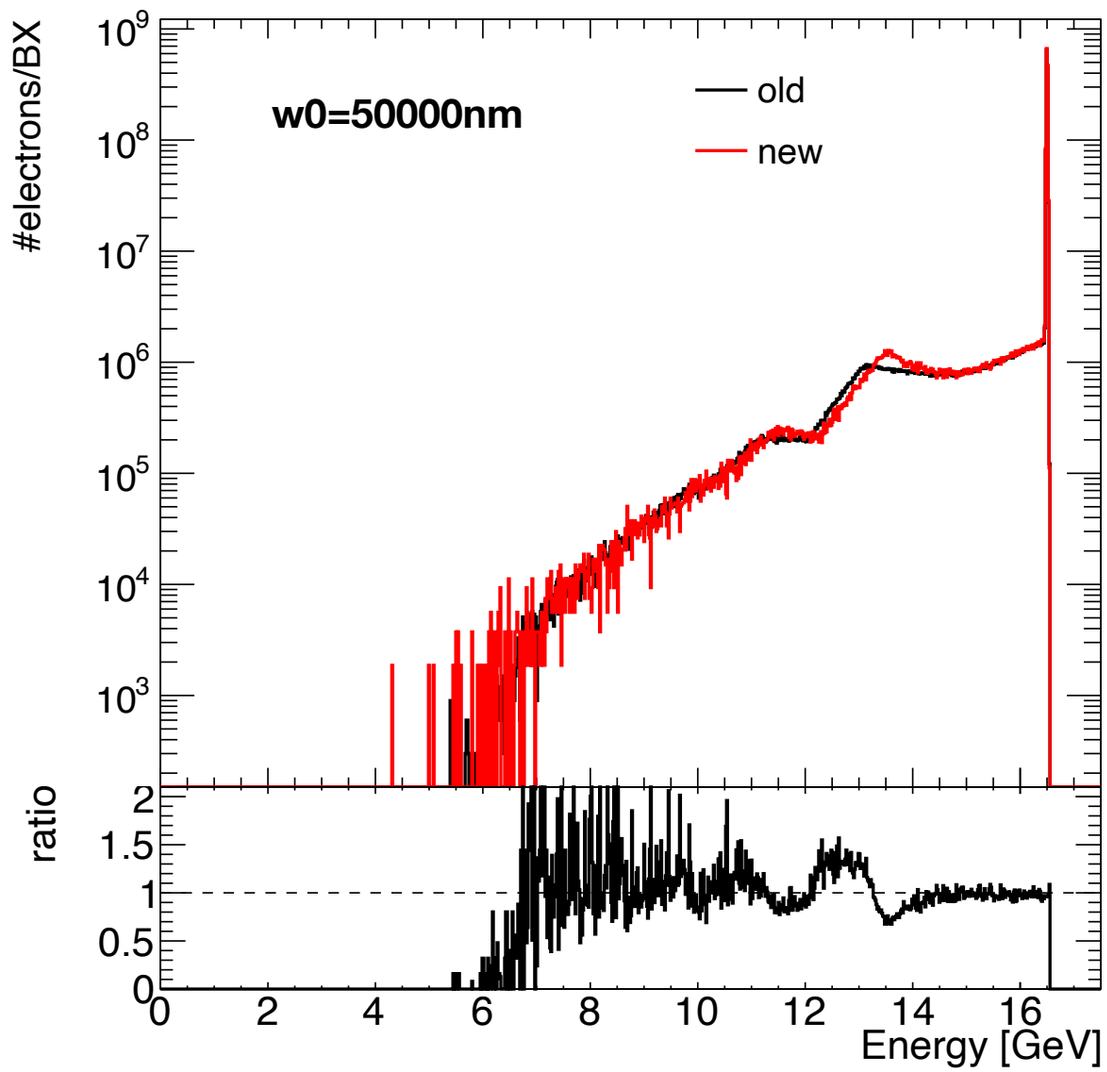
Generated Electron Energy





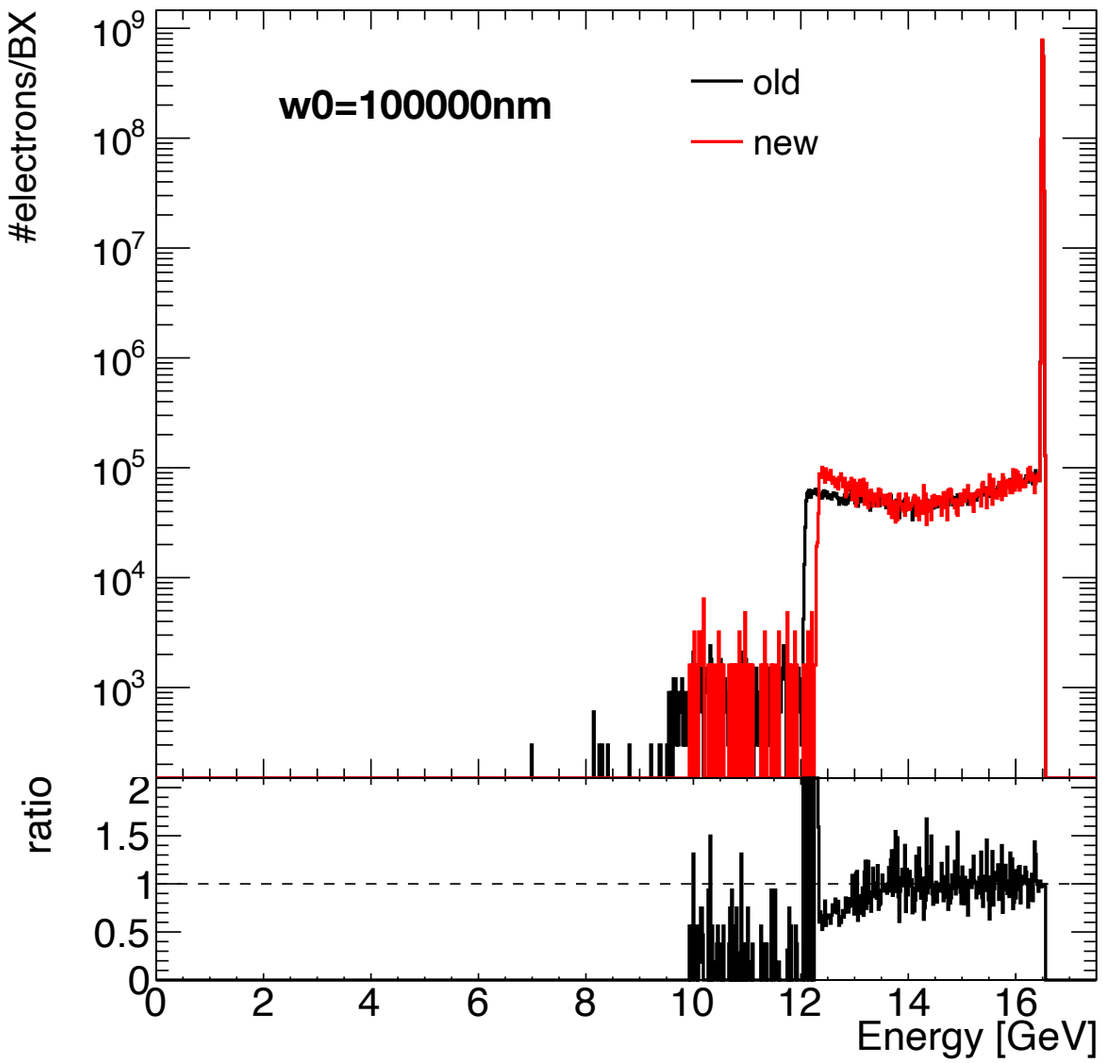
Generated Electron Energy





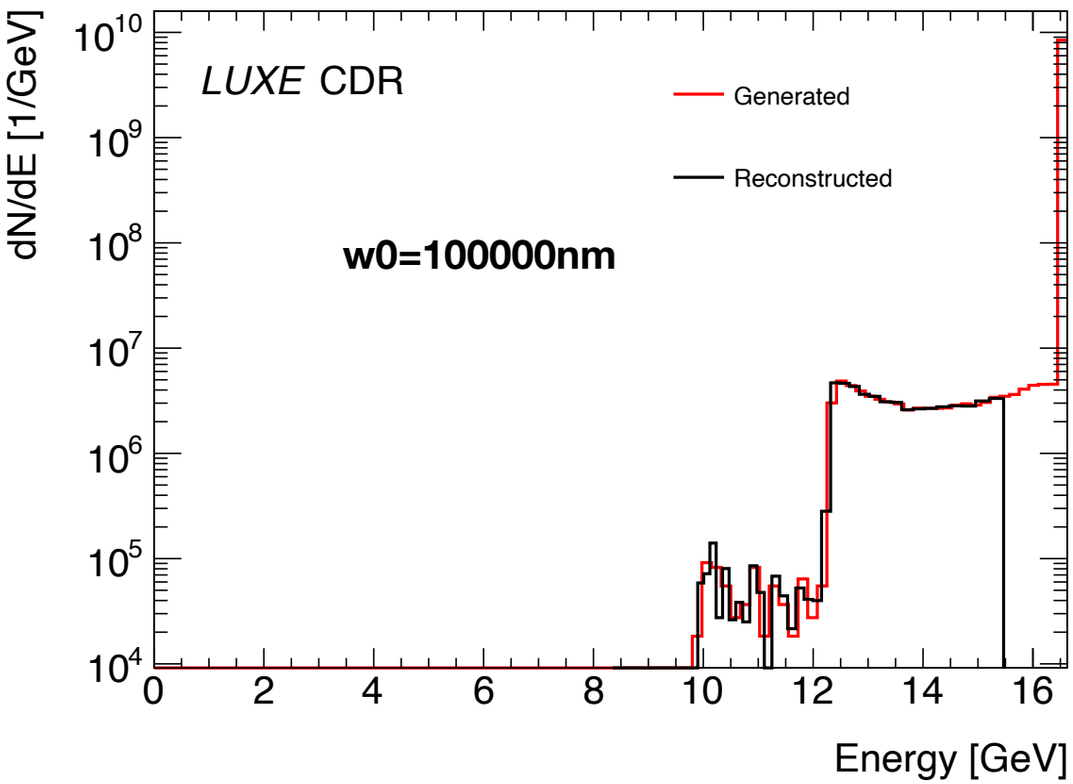
- Edges exhibit more pronounced “kink” at slightly higher energy

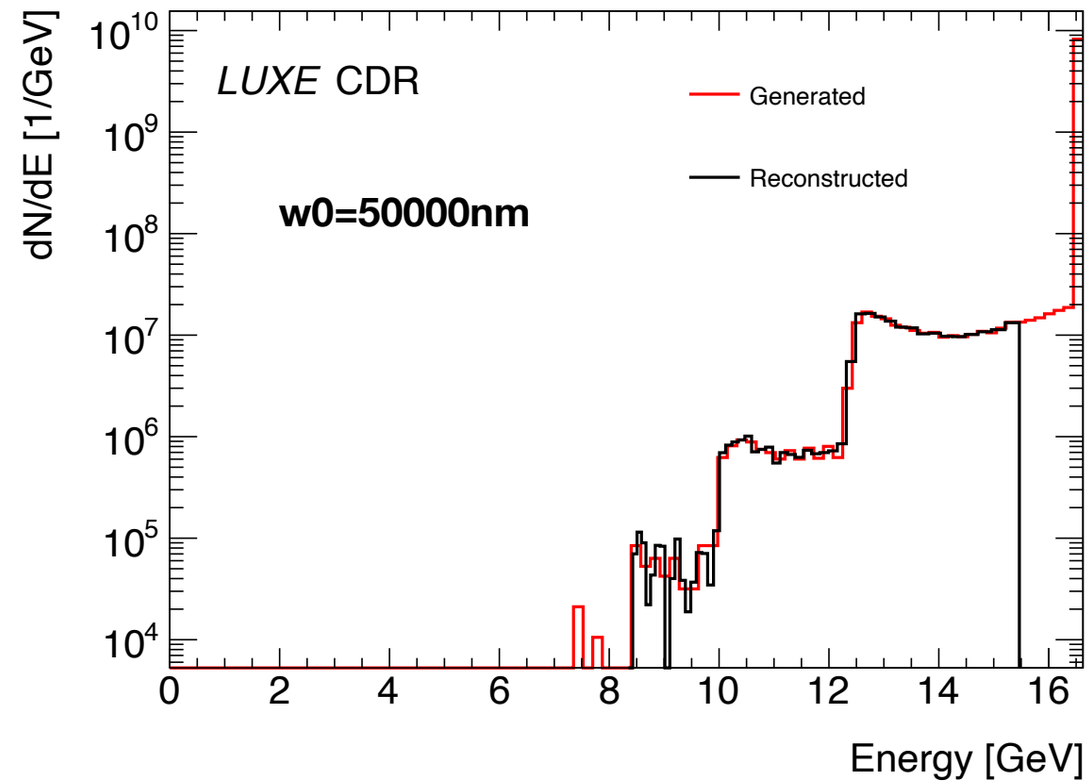
Generated Electron Energy

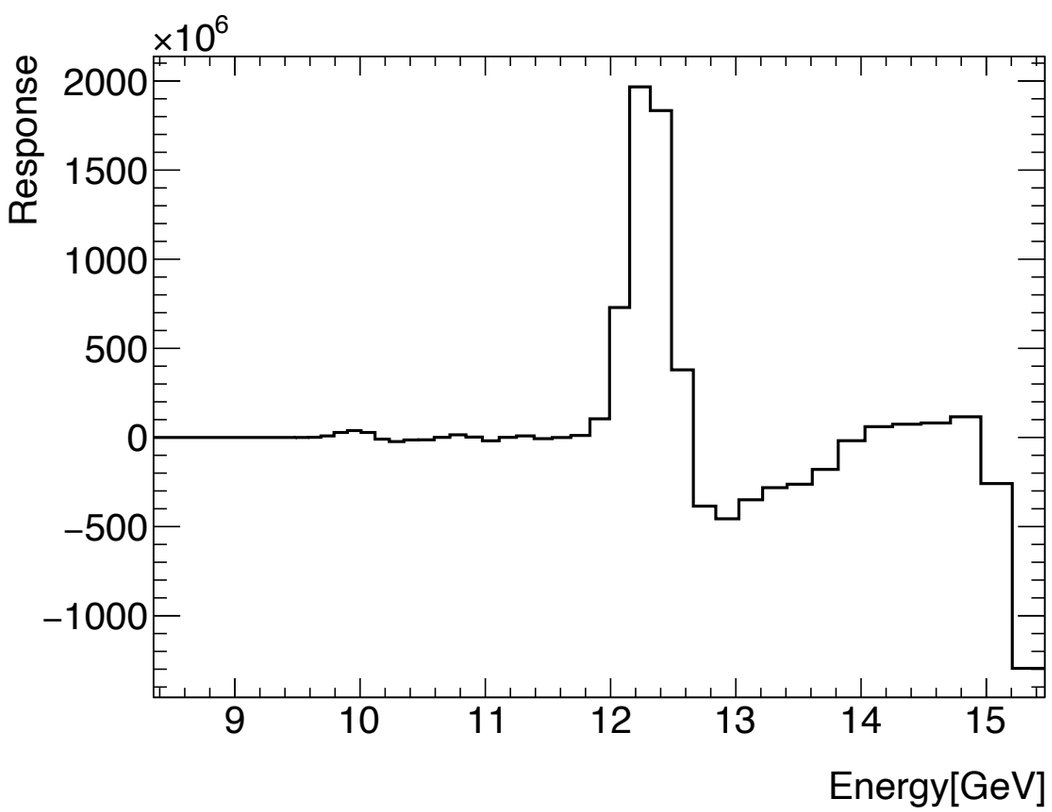


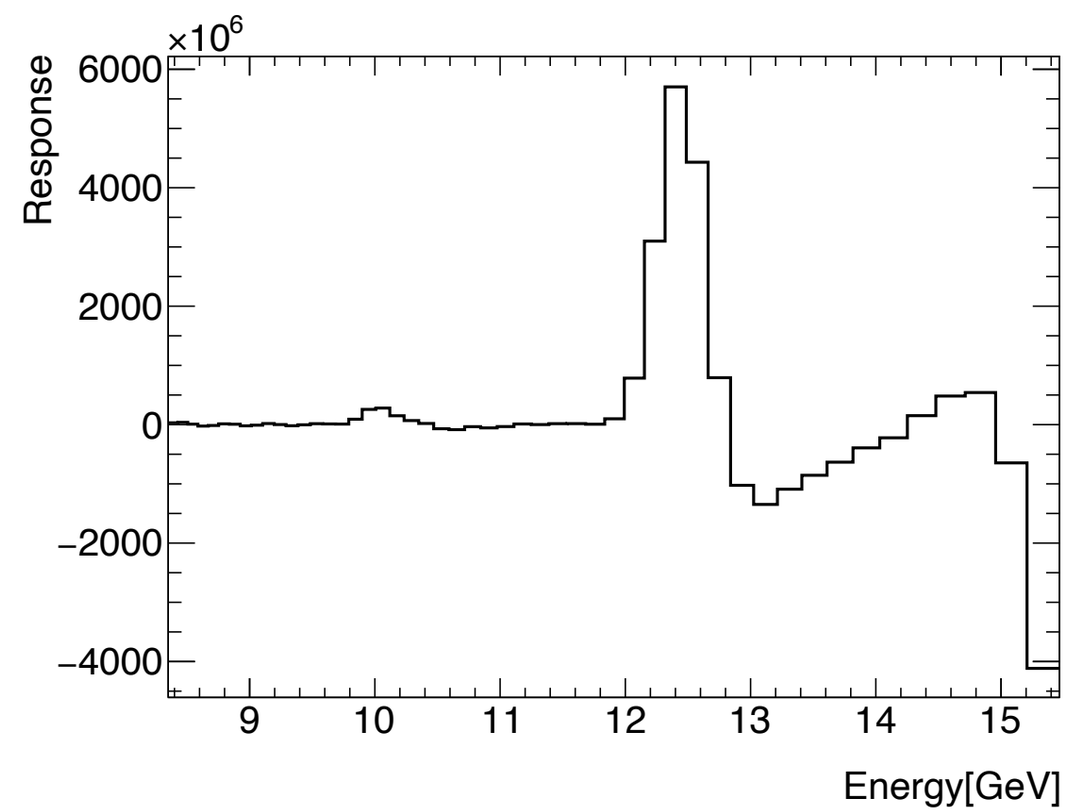
- Compton edge moved to slightly higher energy

“Reco” Energy & Response to FIR

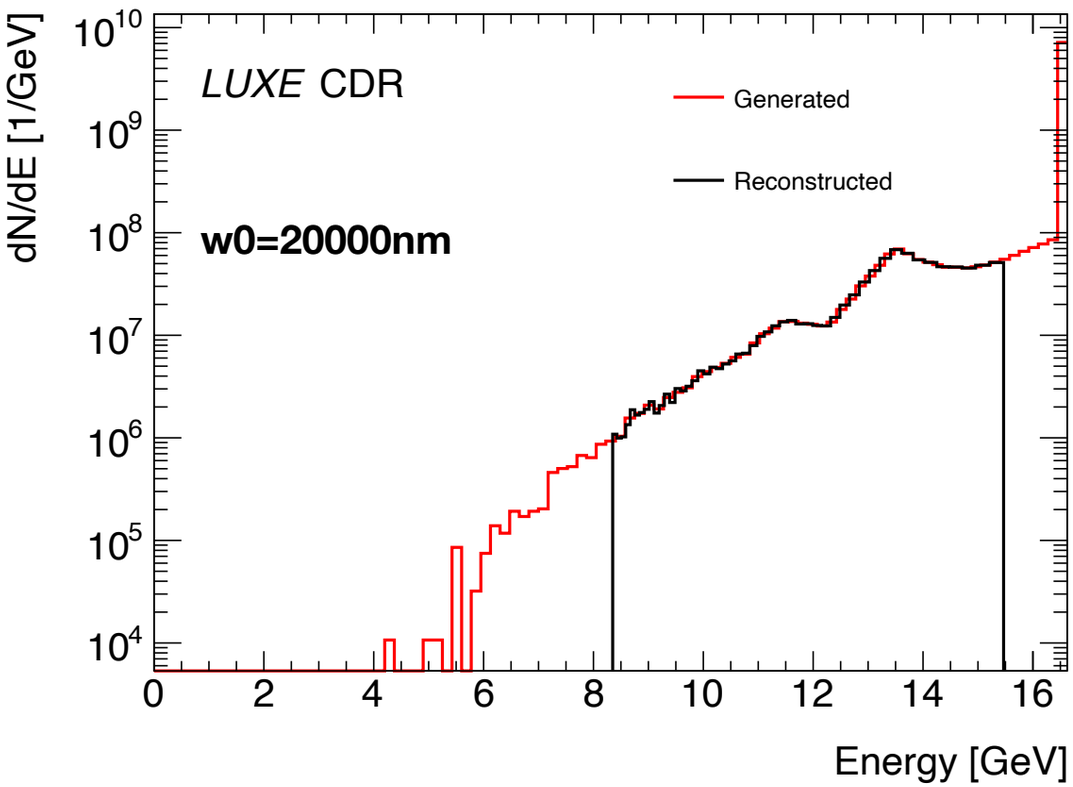


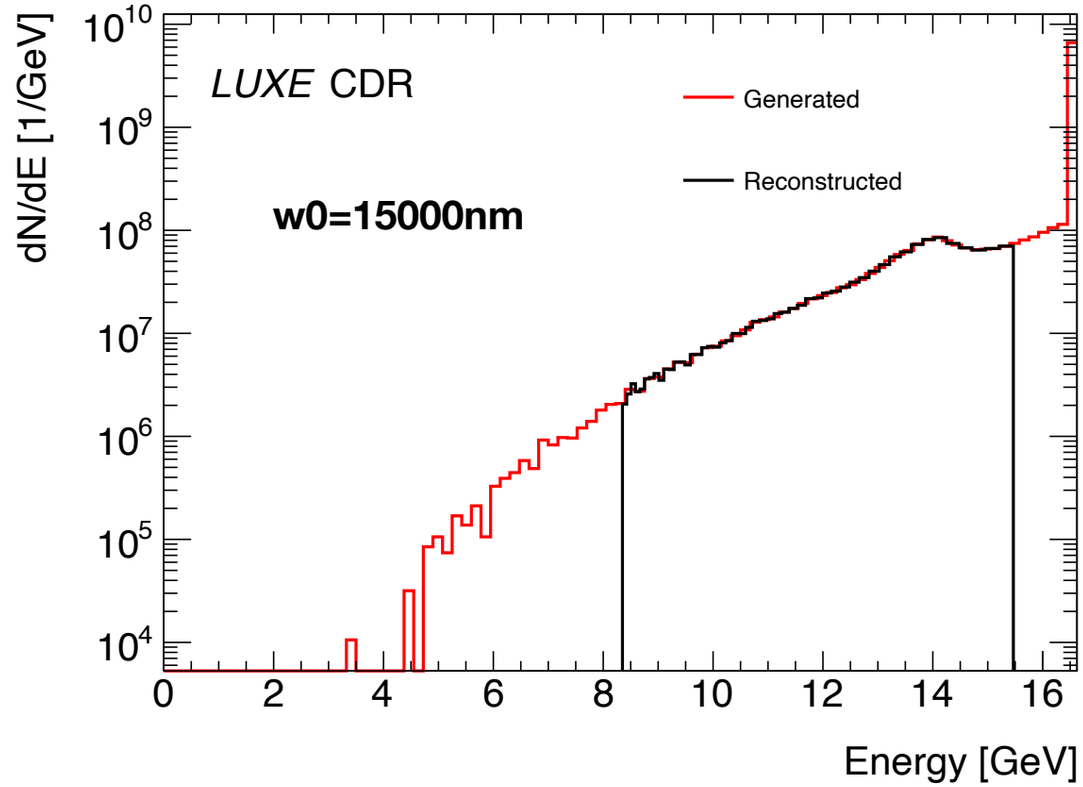


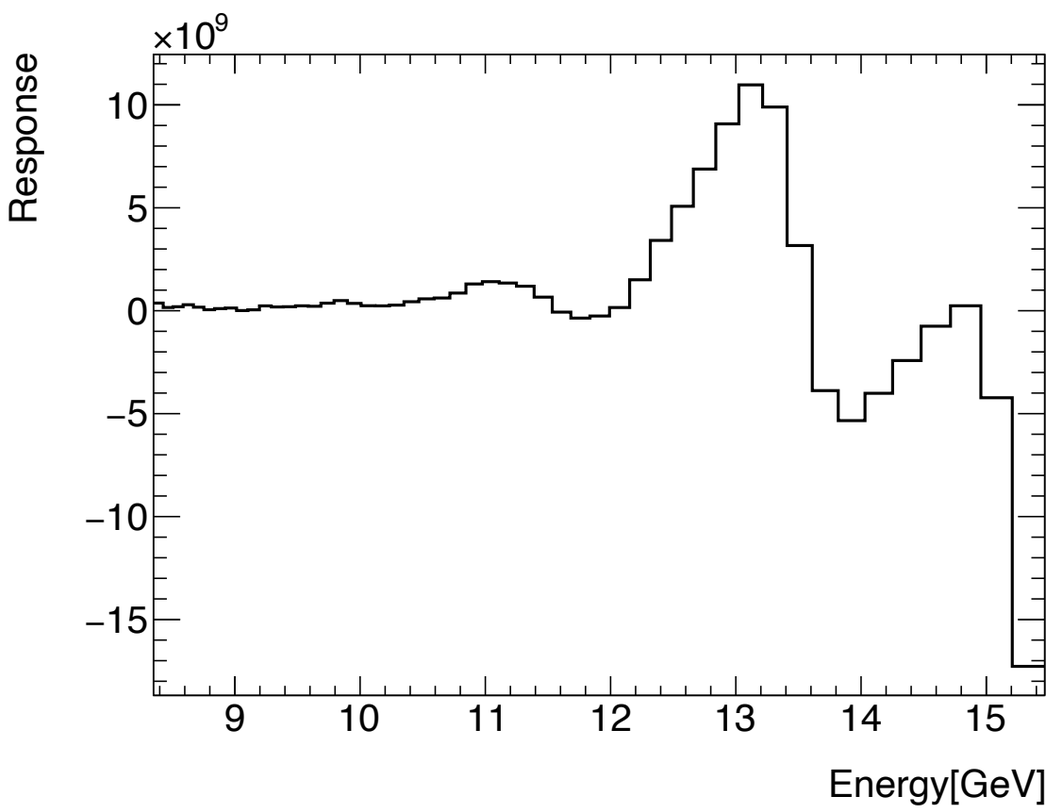


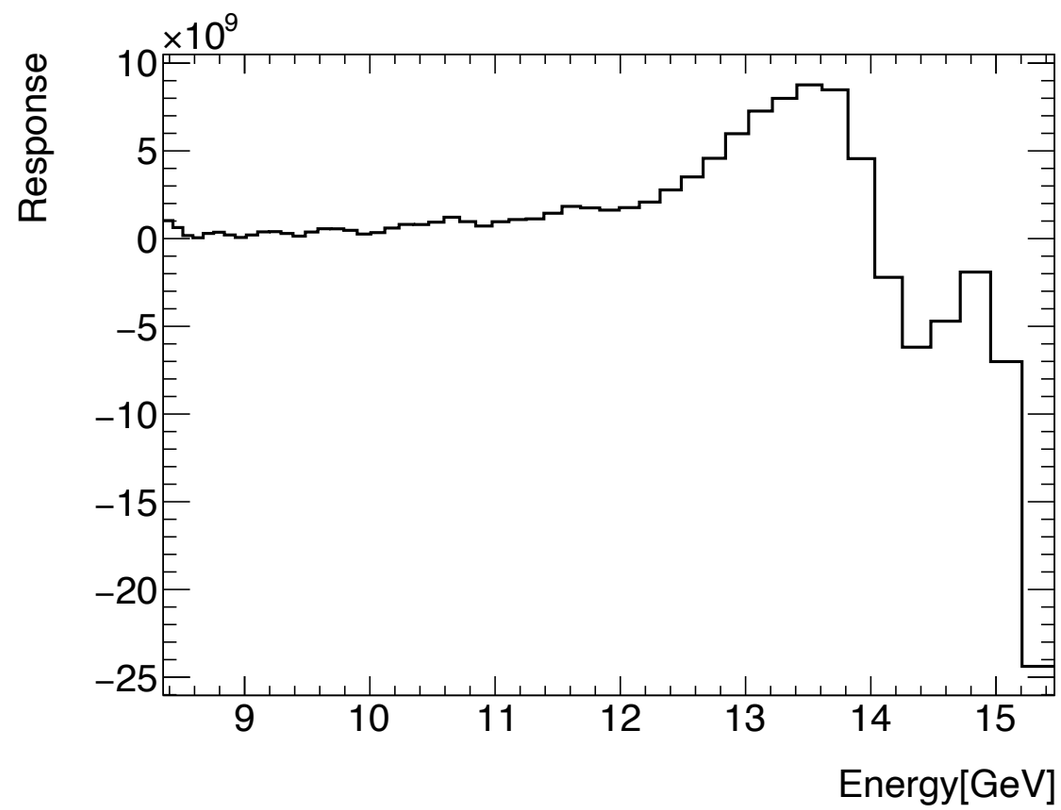


“Reco” Energy & Response

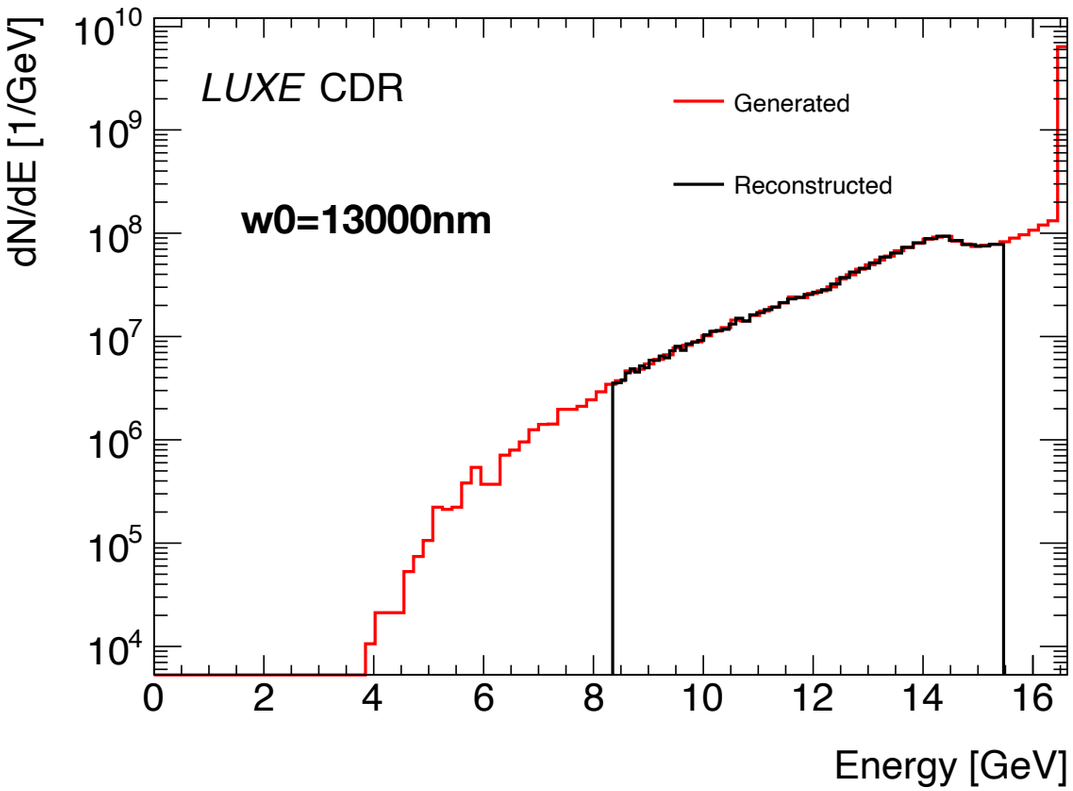


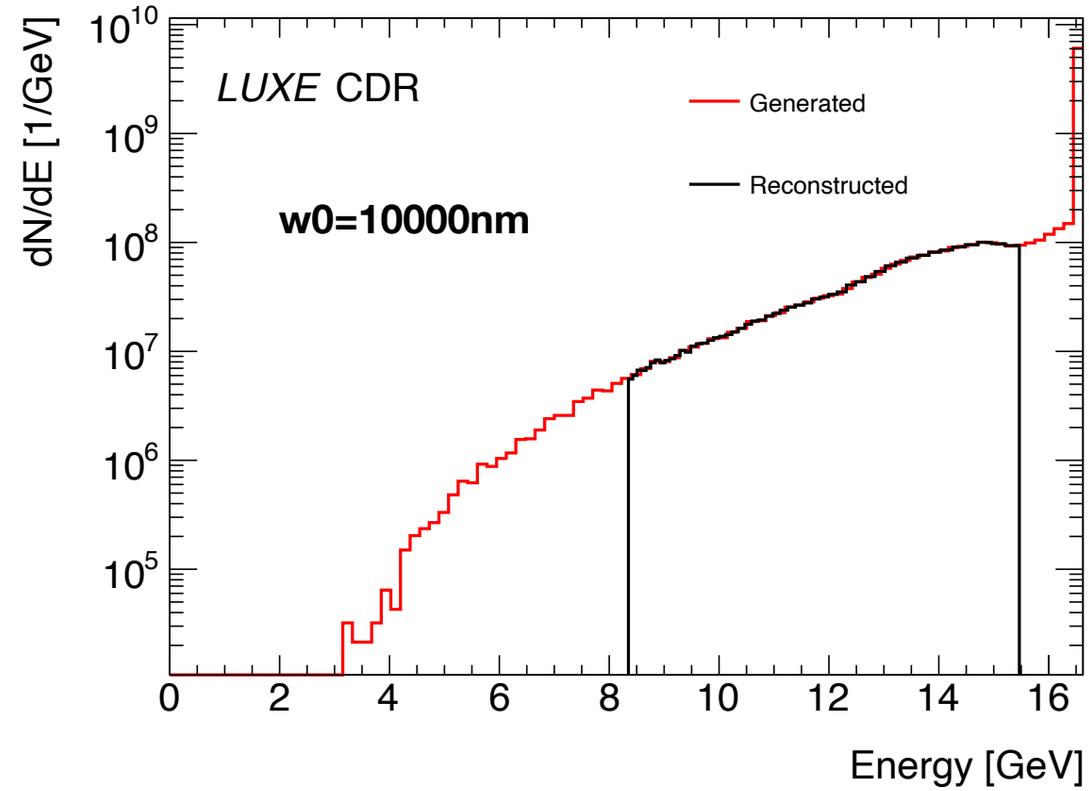


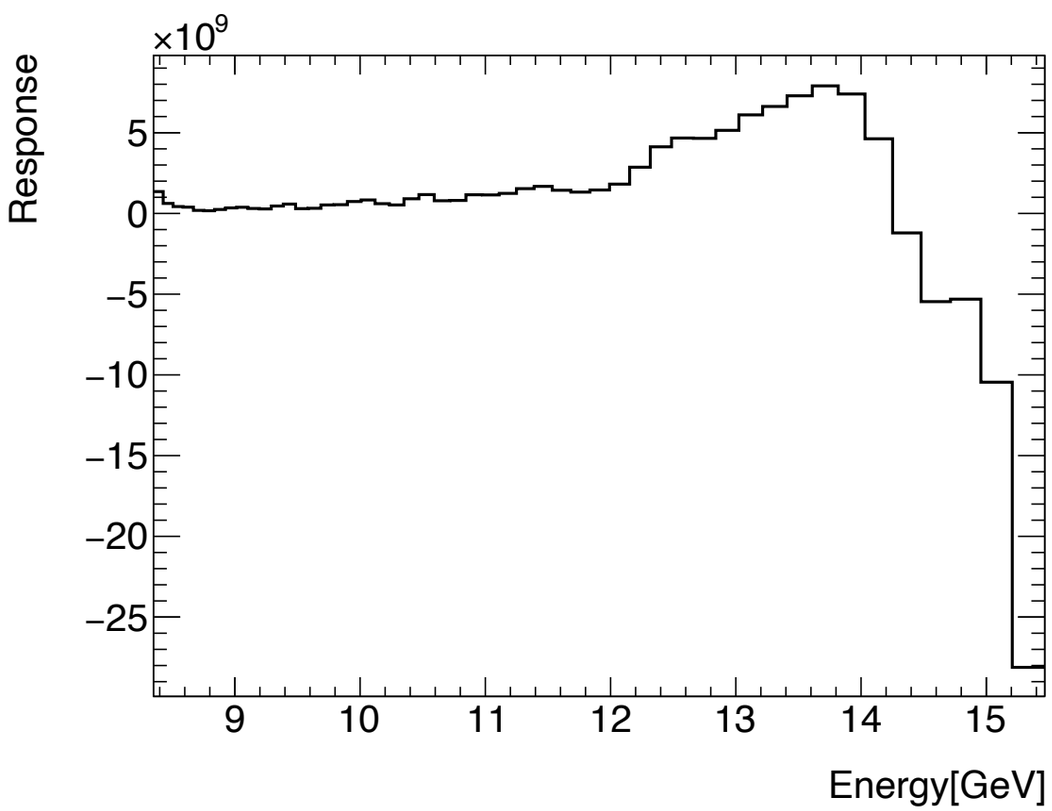


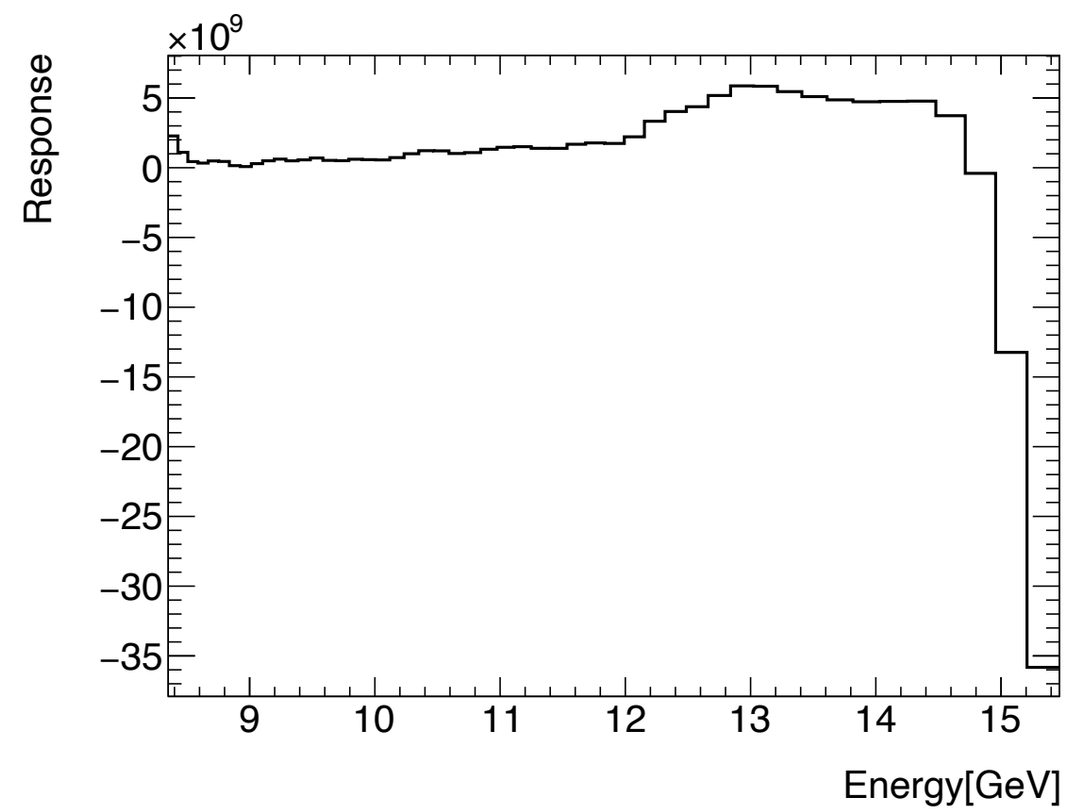


“Reco” Energy & Response

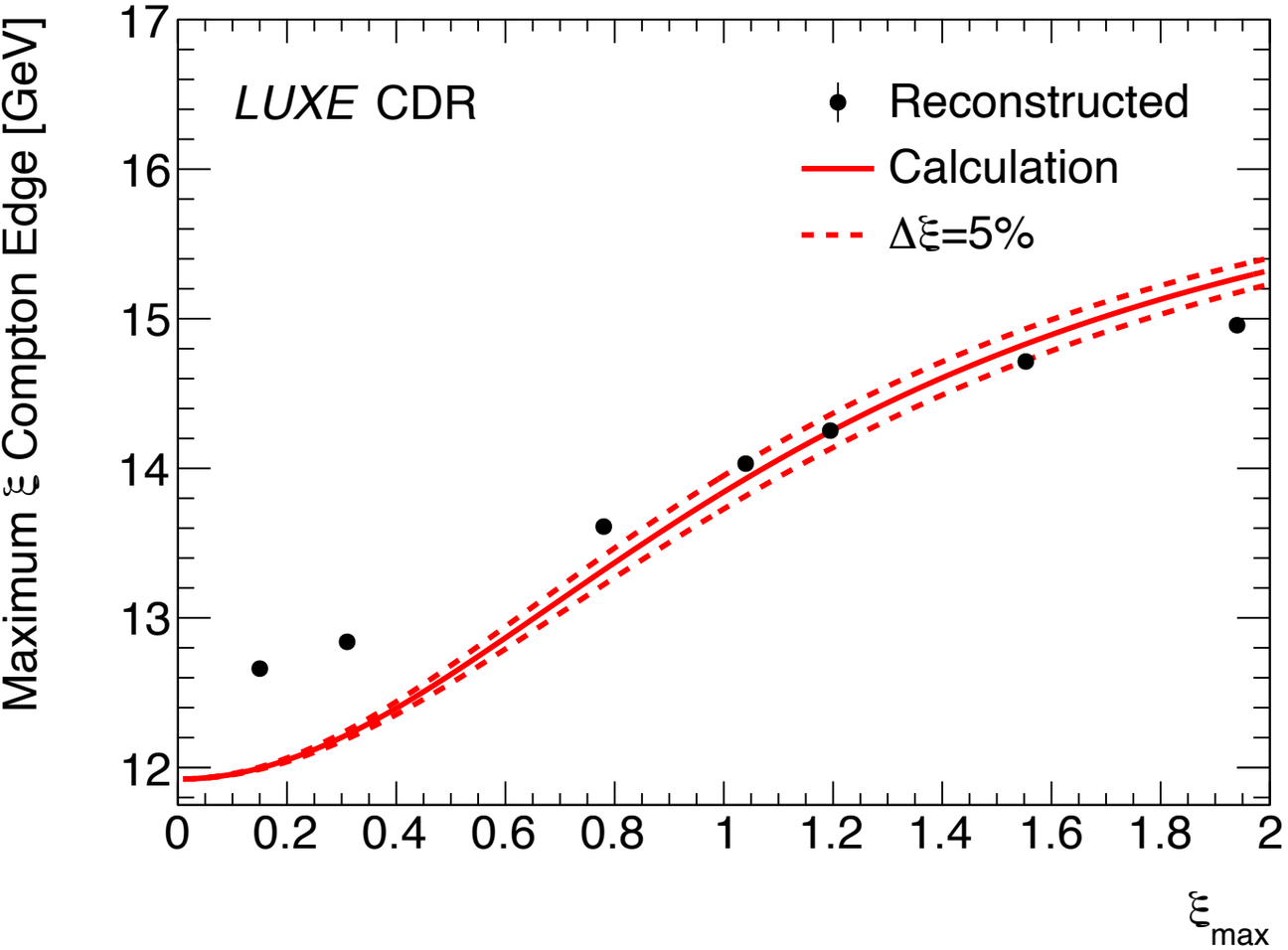


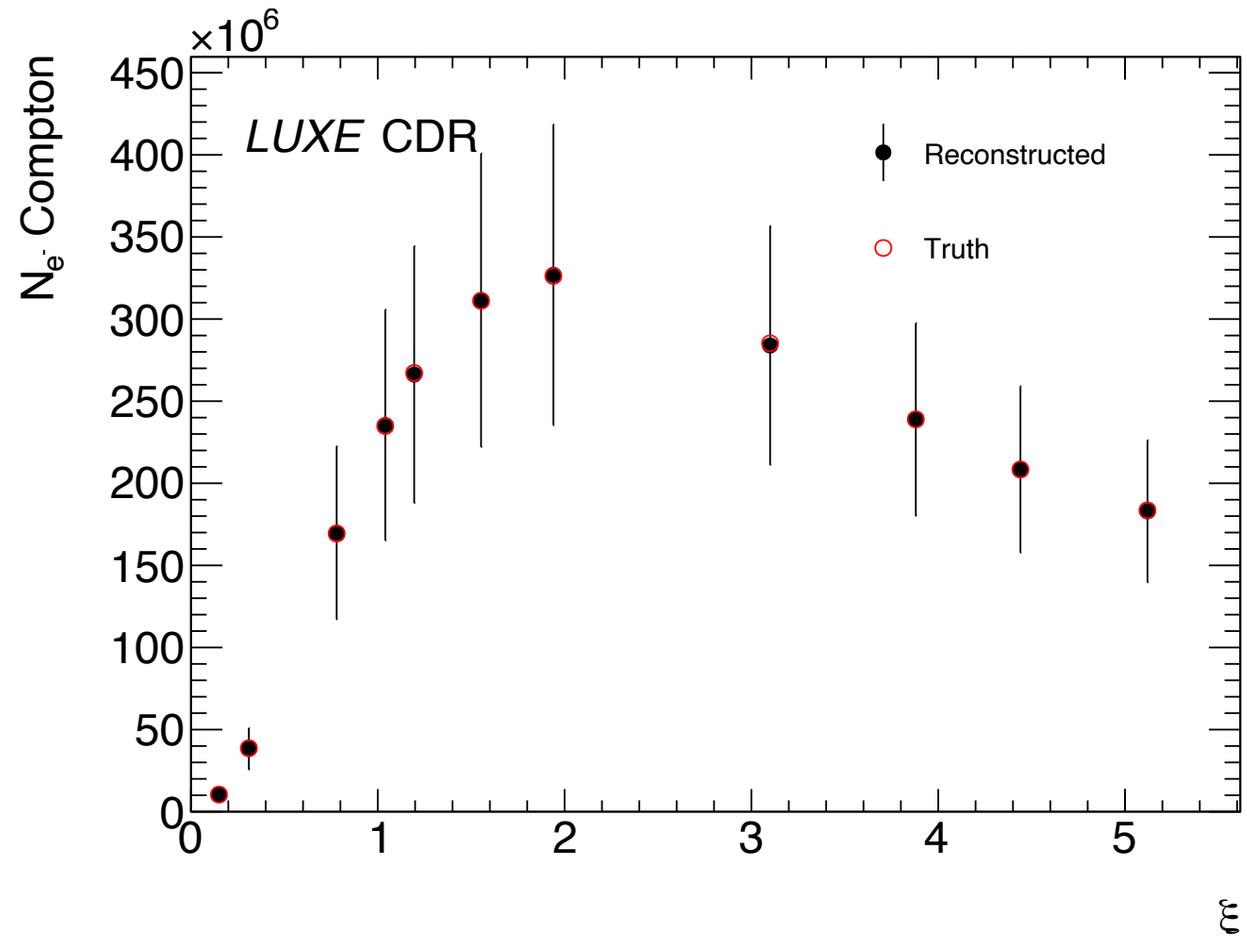






Results


LUXE CDR
Reconstructed
Calculation
Δξ=5%
Maximum ξ Compton Edge [GeV]
ξmax
17
16
15
14
13
12
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2


LUXE CDR
Reconstructed
Truth
Ne- Compton
×10^6
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
5
ξ