

What is the problem with the simulation data?

Simulated May data

Saiva, Christian, Erik, Lan, Katja, ...

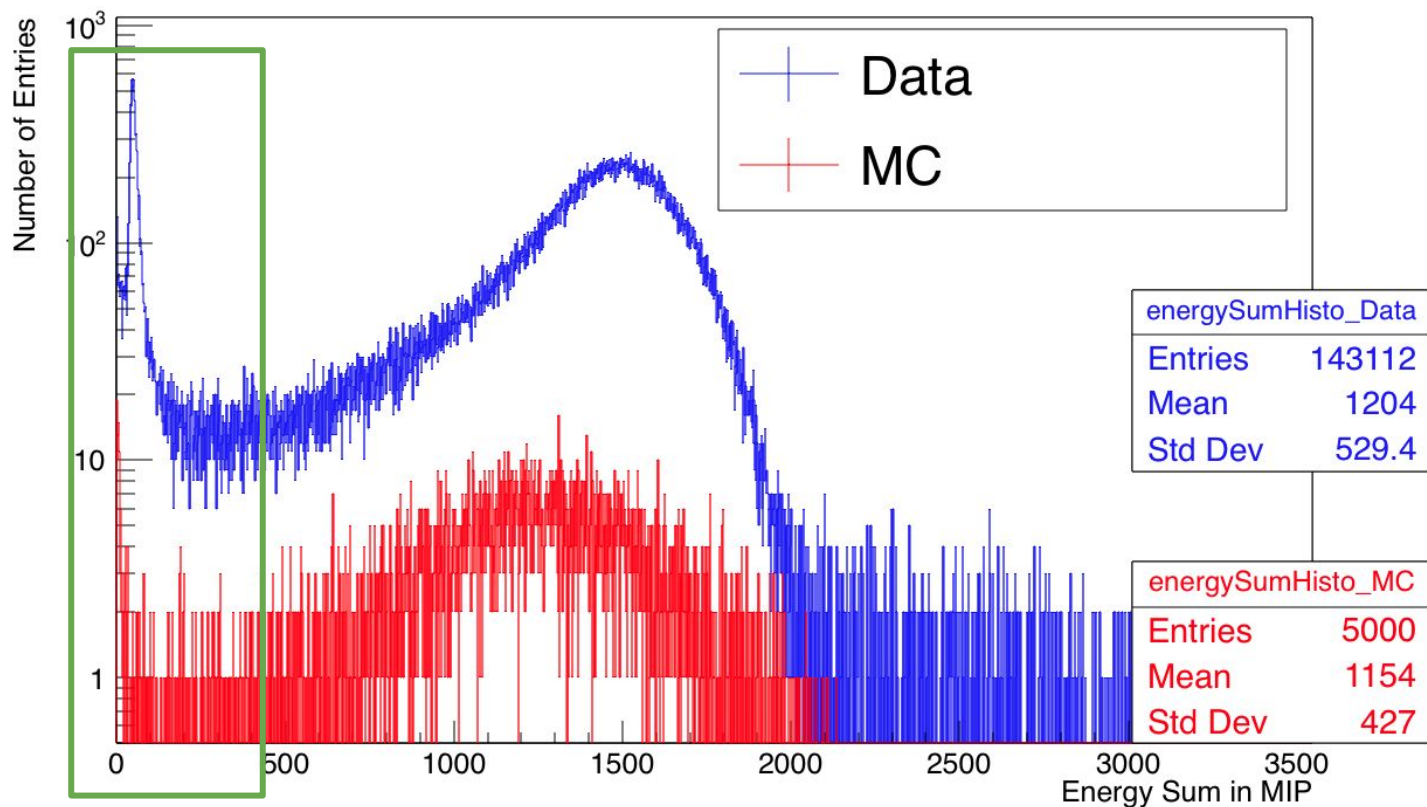


Universität Hamburg

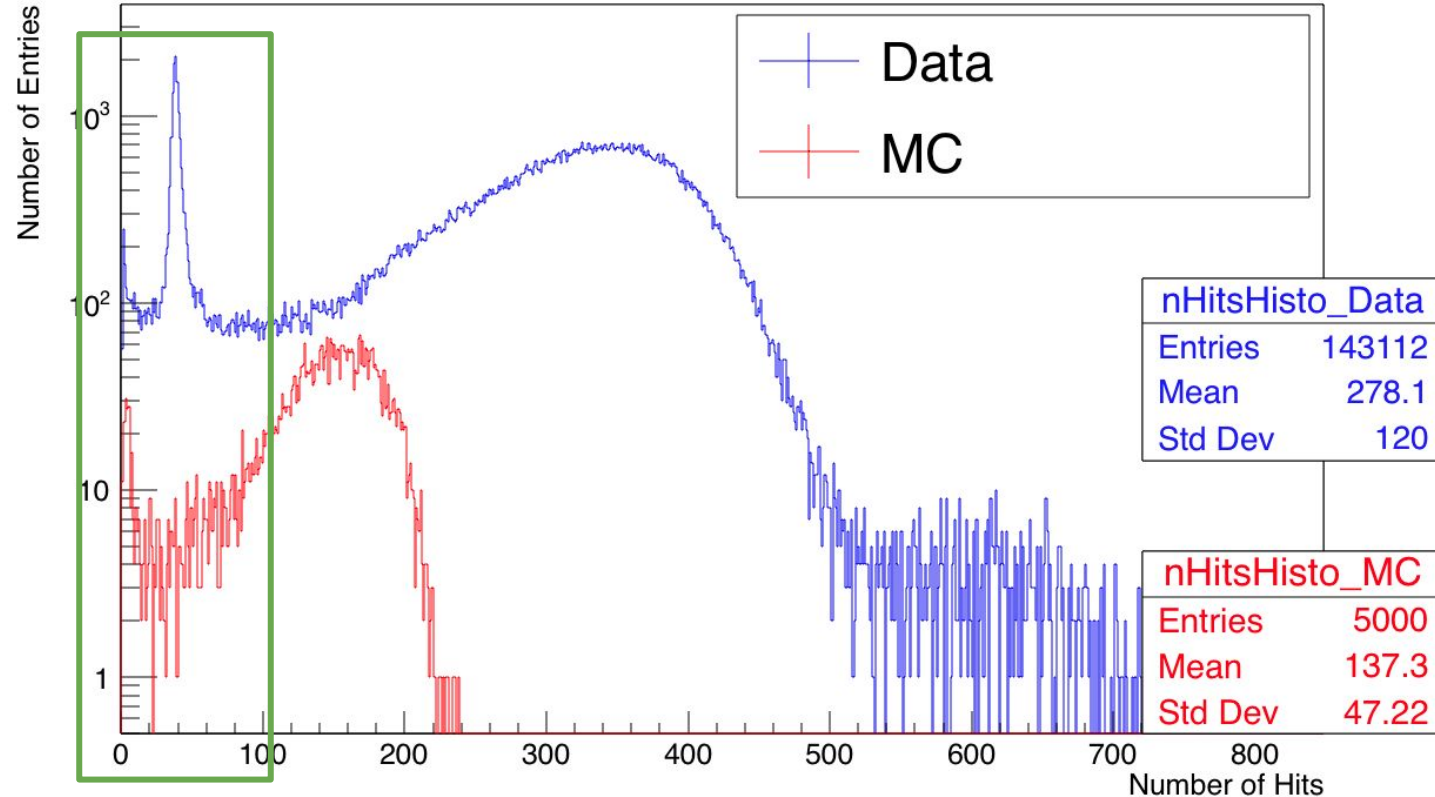
DER FORSCHUNG | DER LEHRE | DER BILDUNG



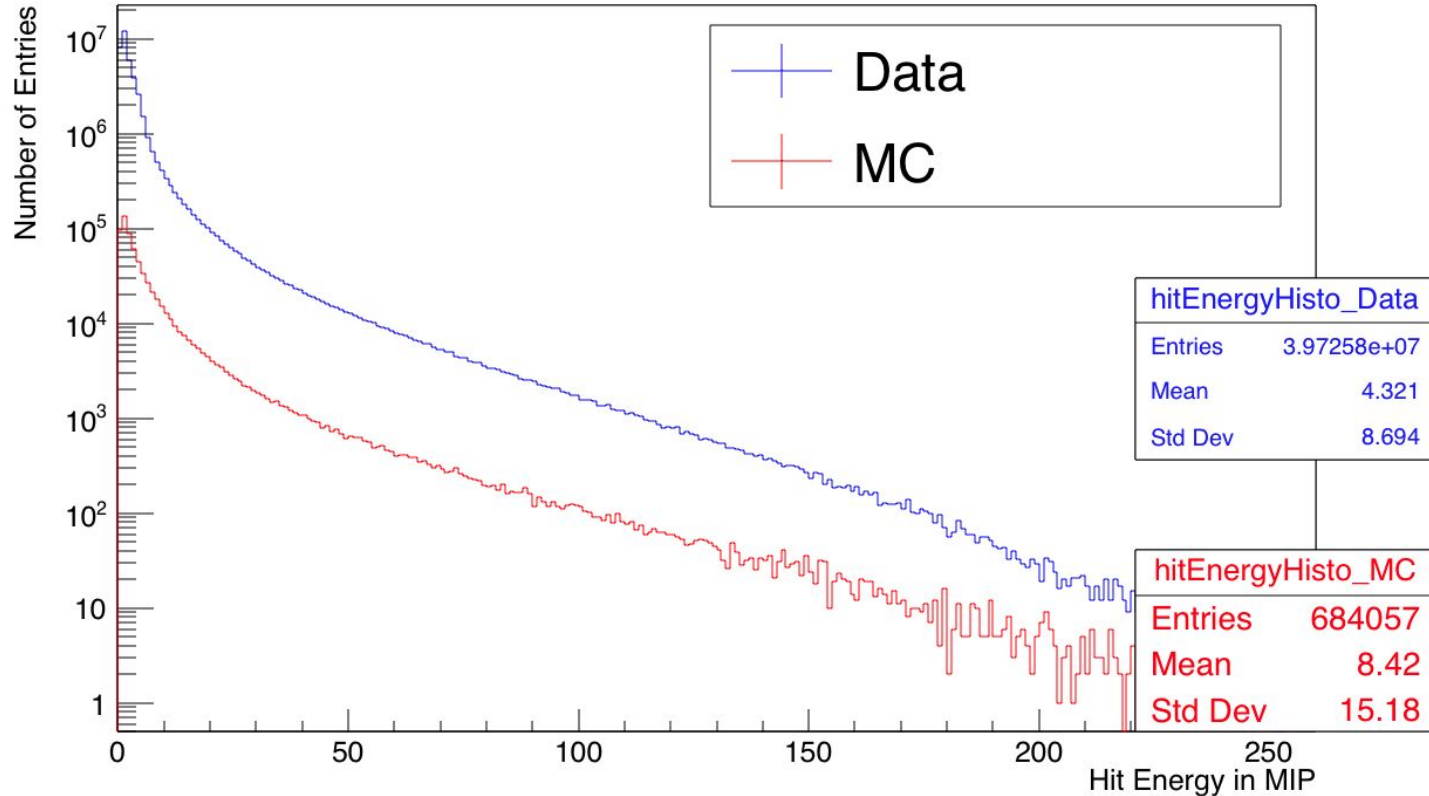
50 GeV pions



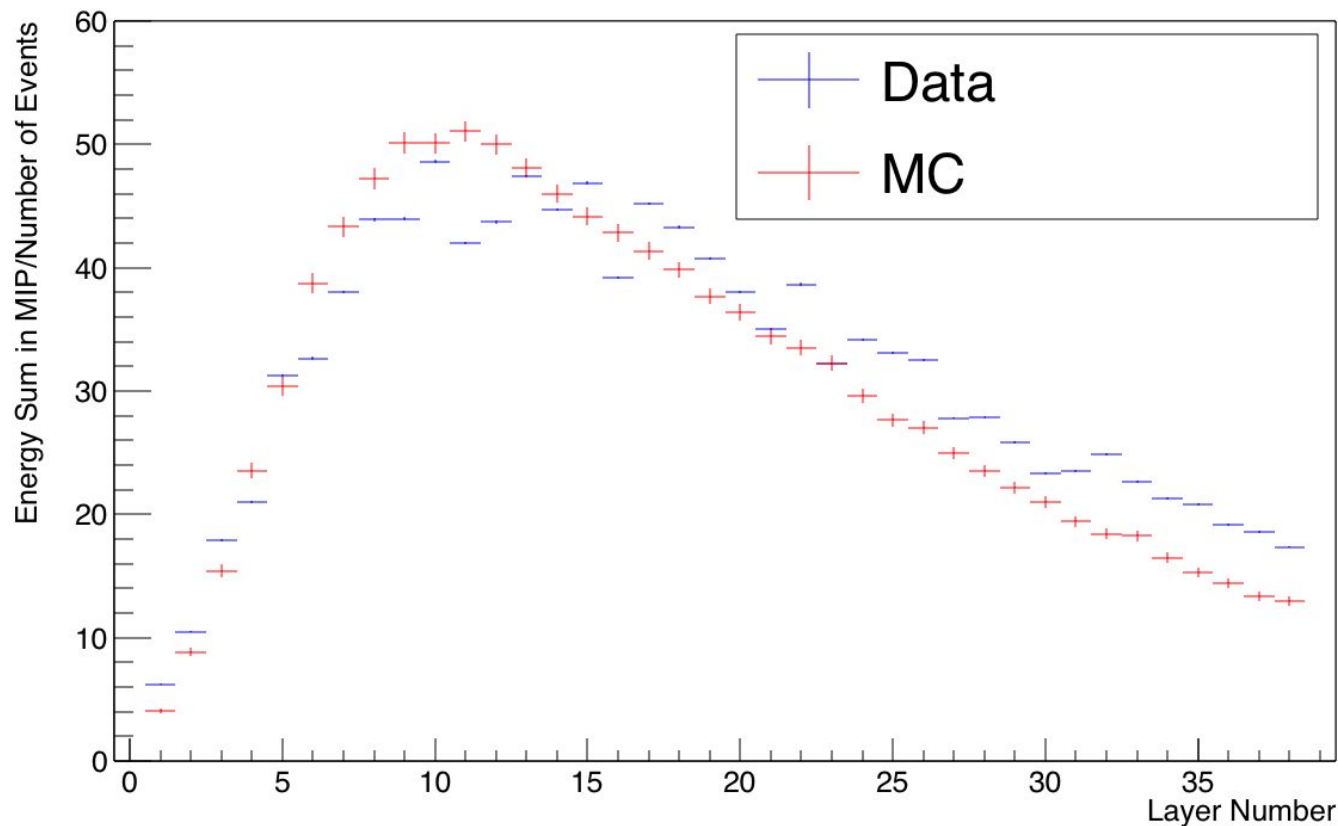
40 GeV muons



50 GeV pions



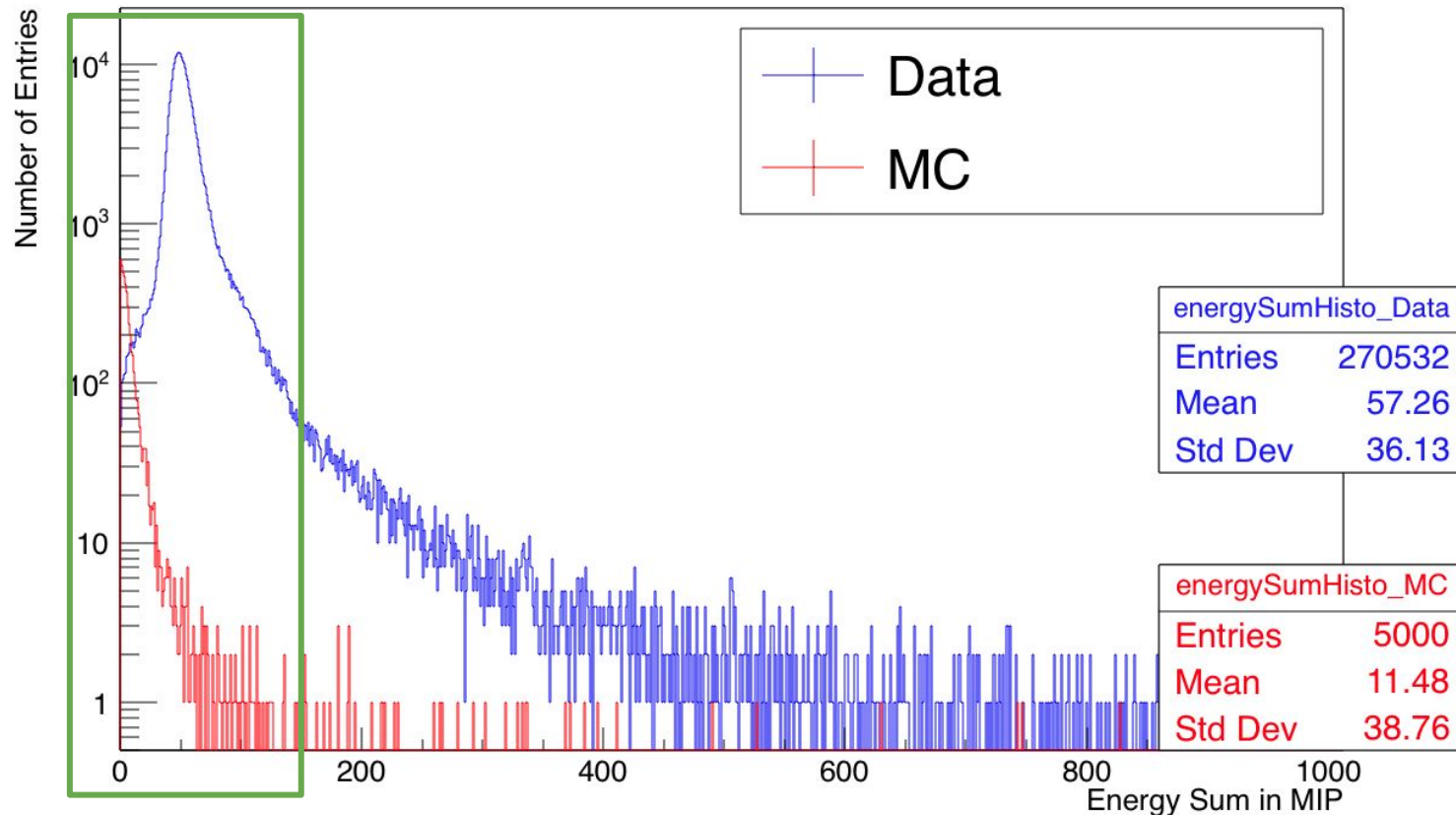
50 GeV pions



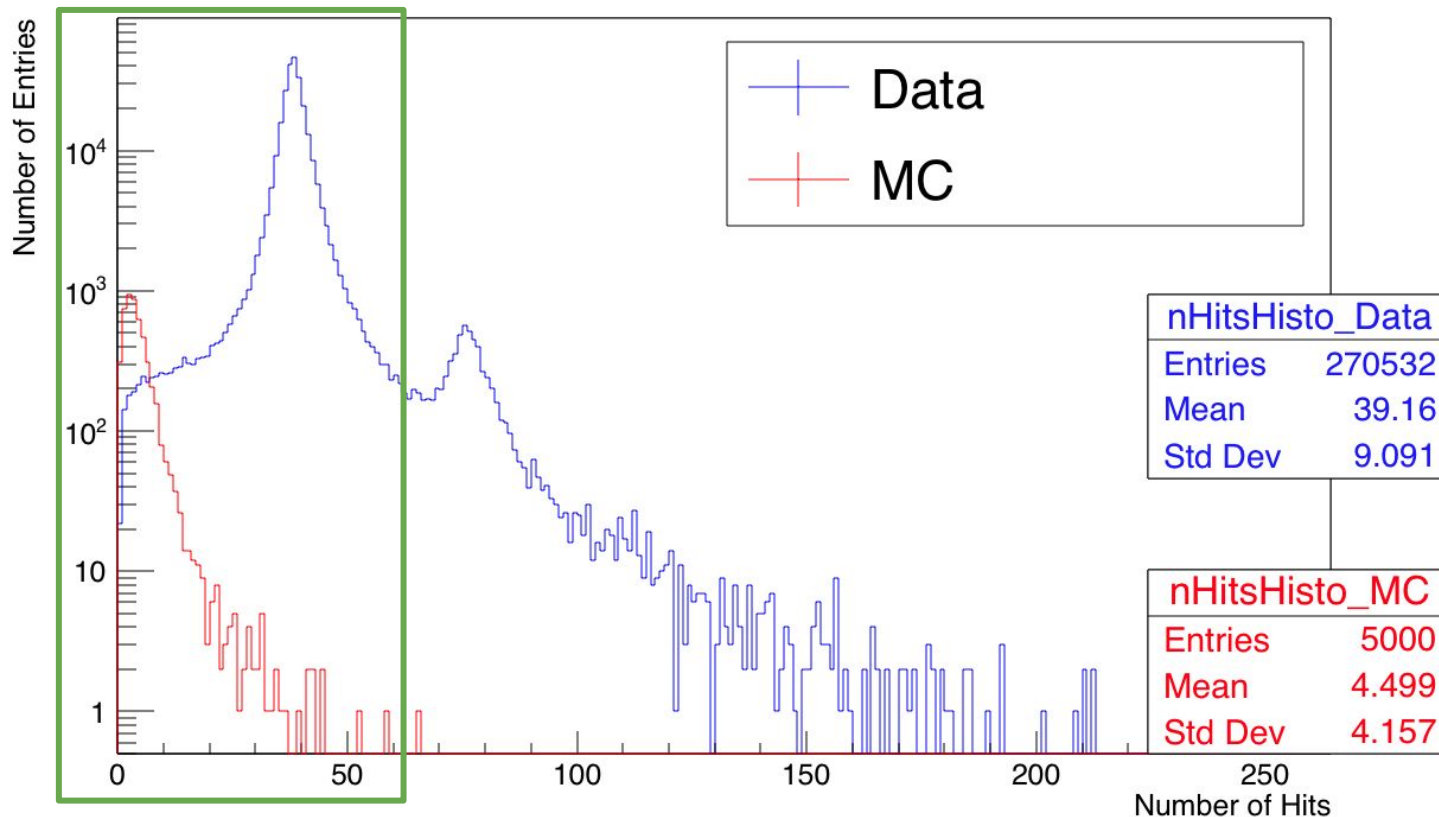
Muons for checks

- Check muons to see if there is a MIP peak around 1 in hit energy distribution

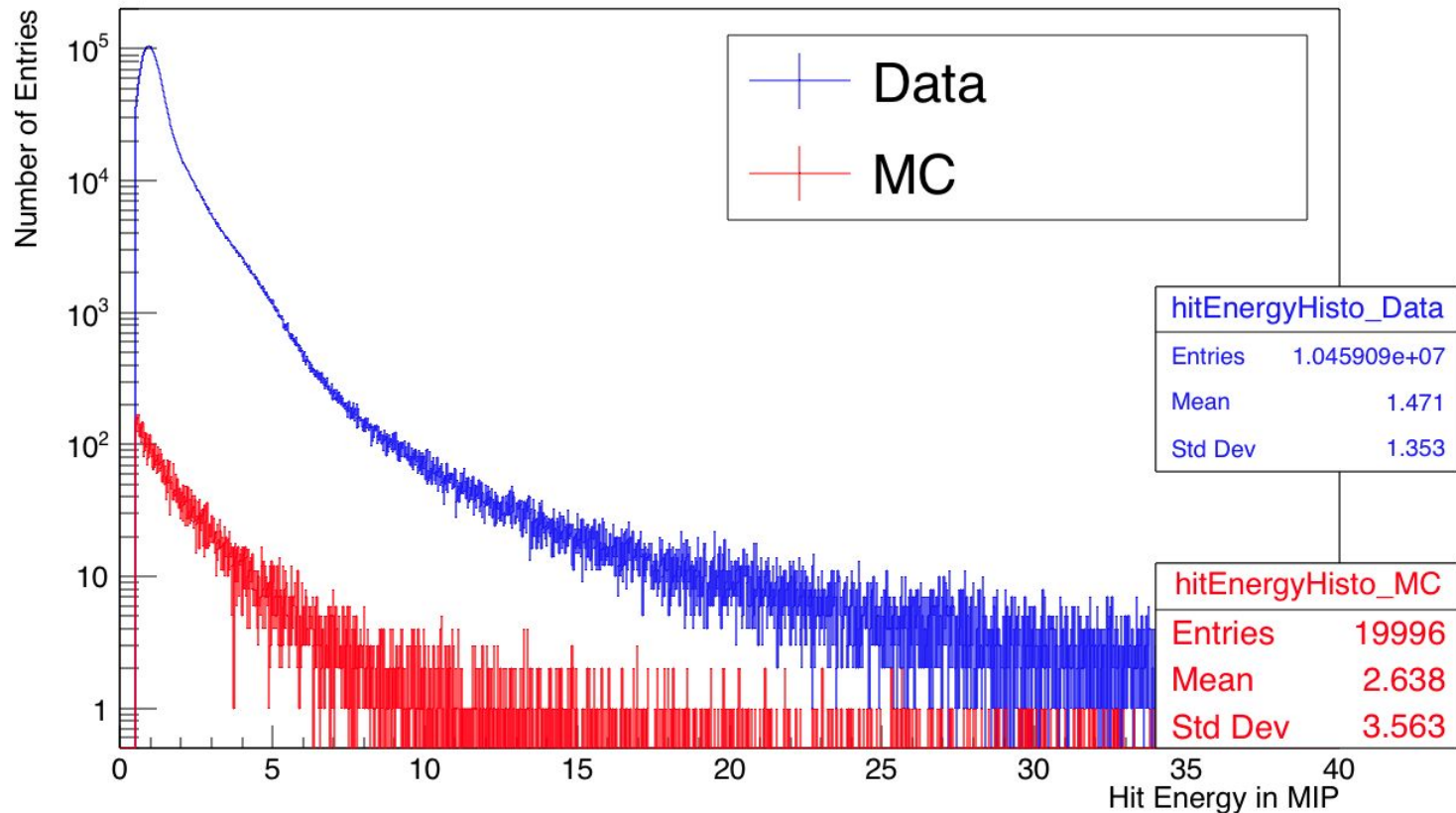
40 GeV muons



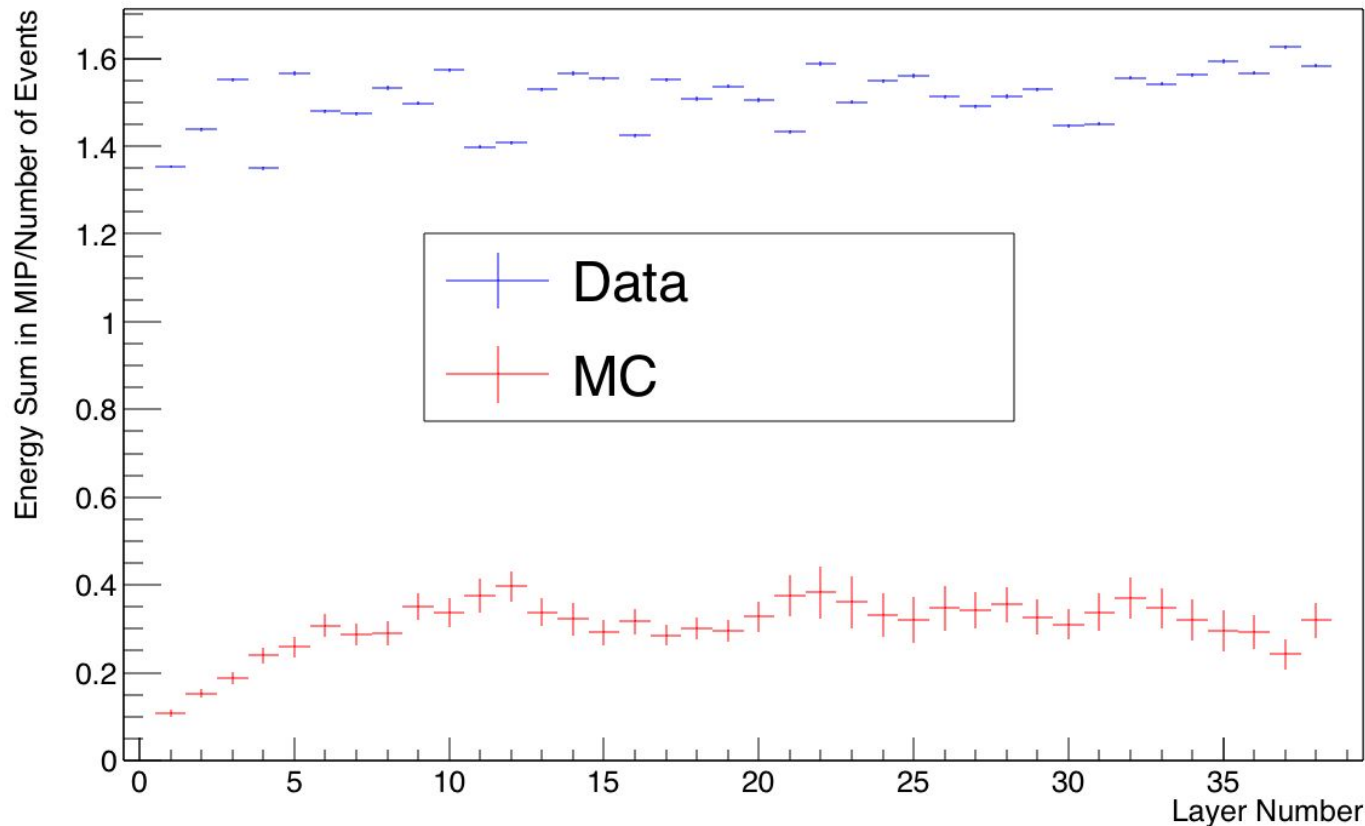
40 GeV muons



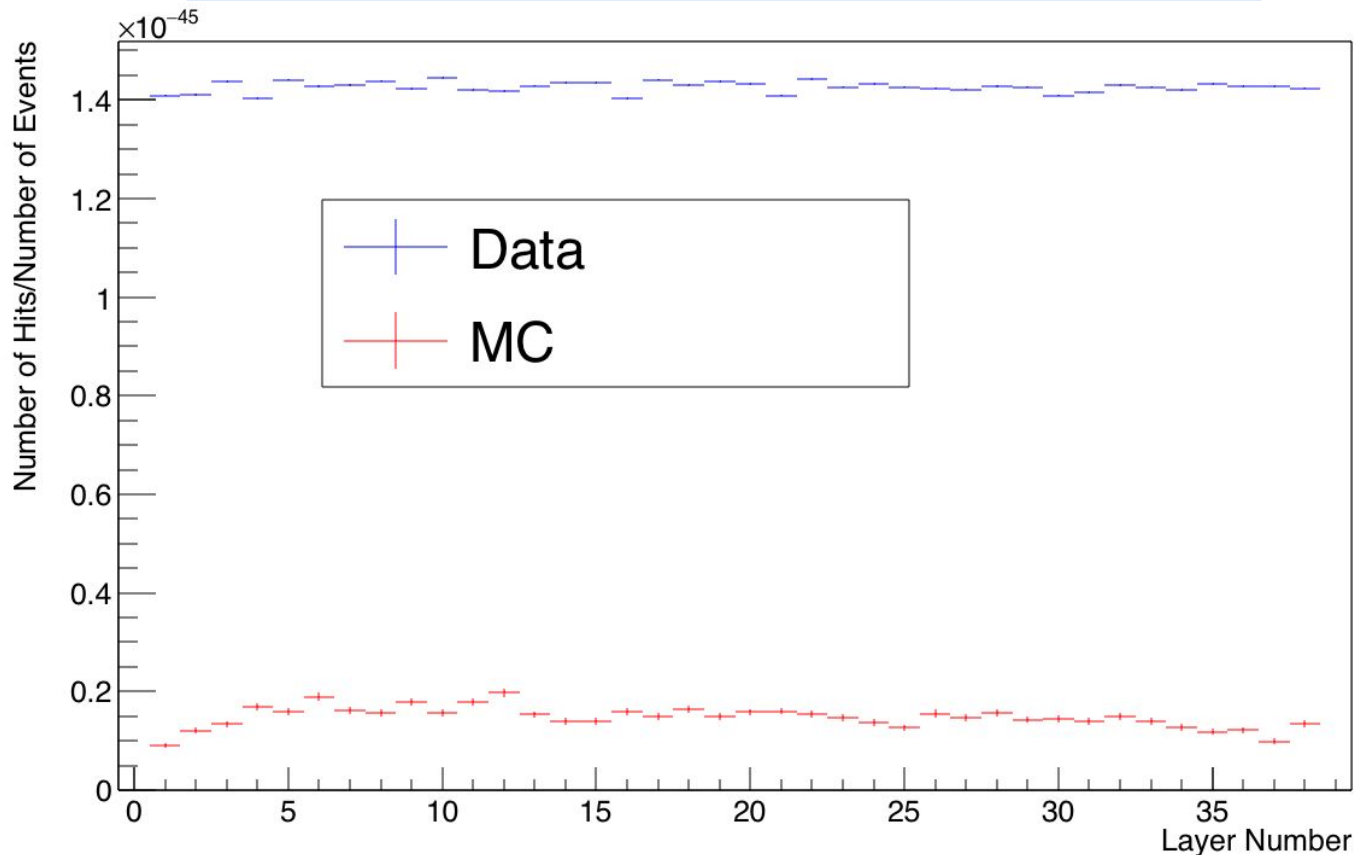
40 GeV muons



40 GeV muons



40 GeV muons

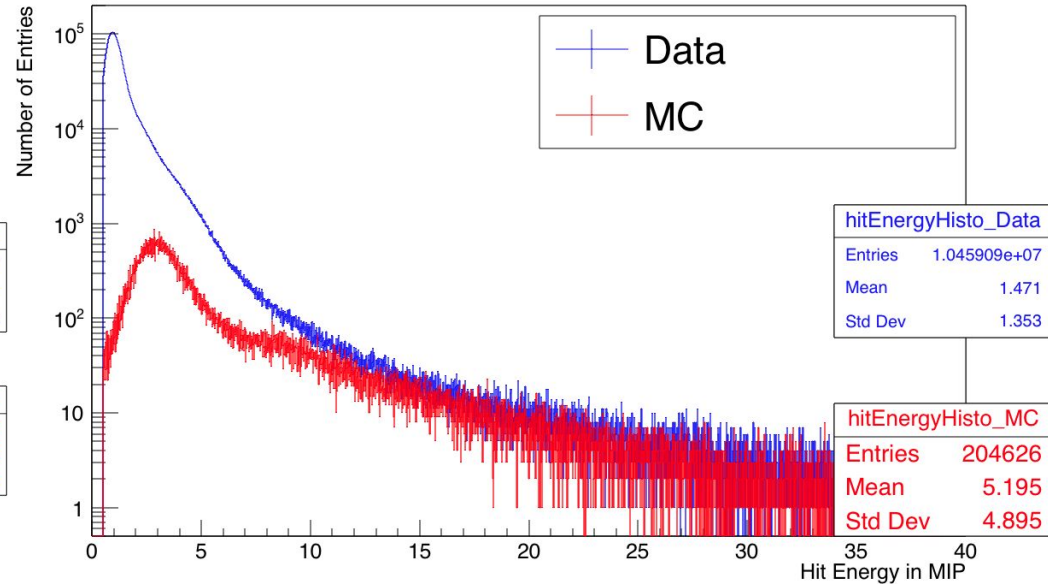
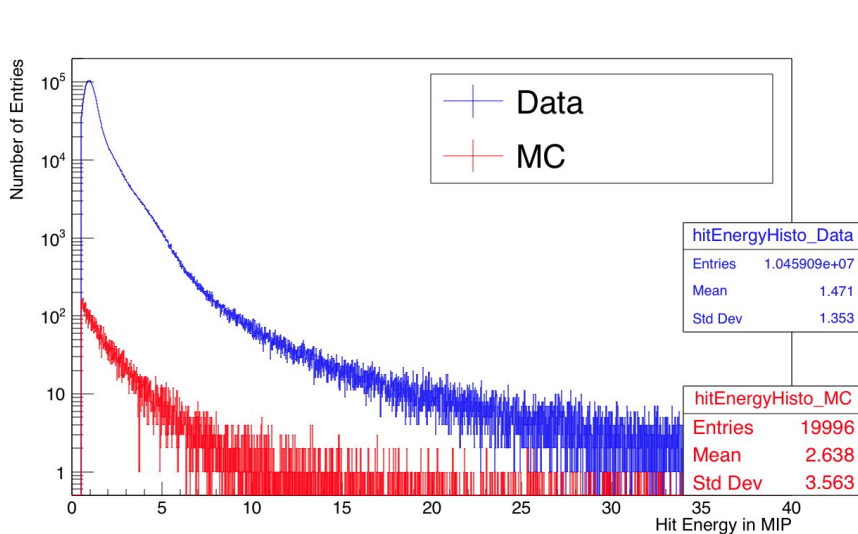


what is the problem with the simulation data?

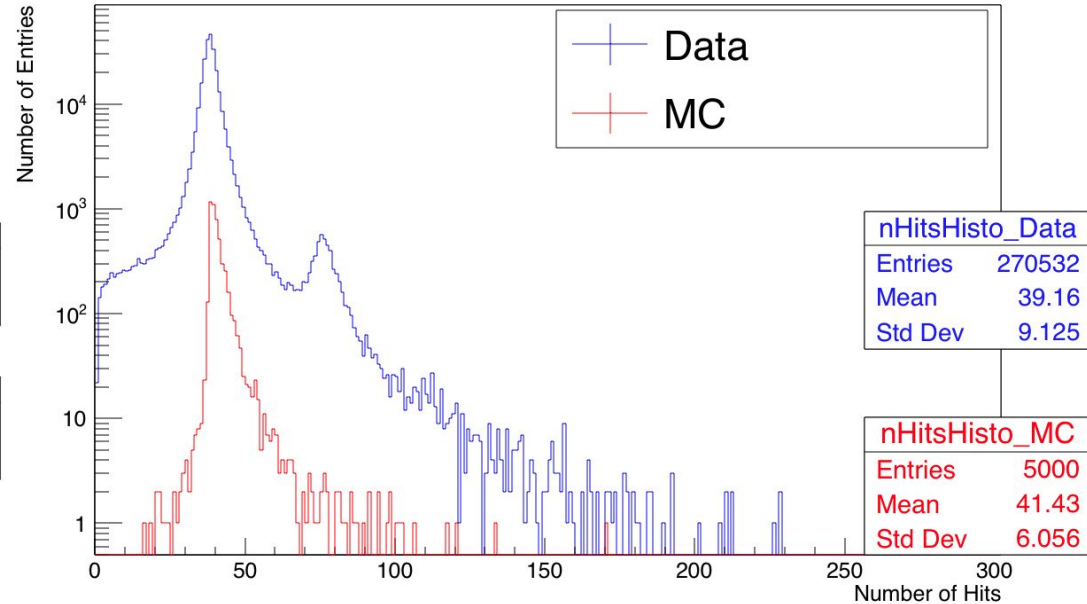
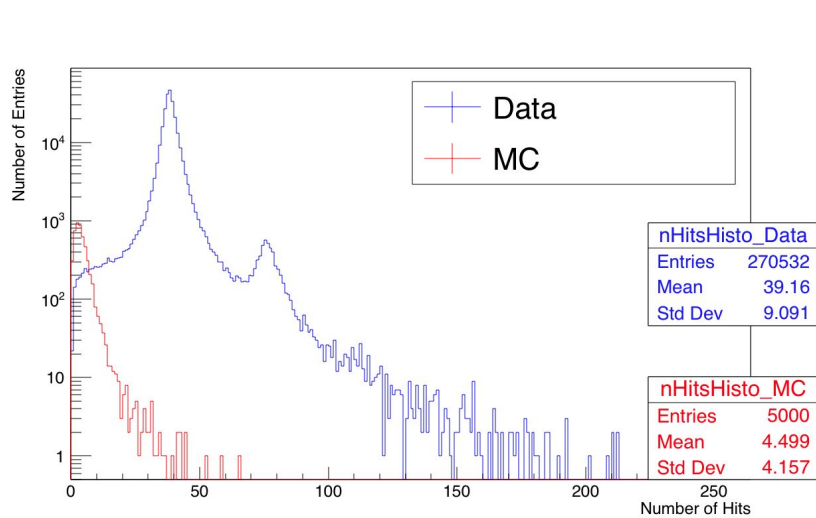
What can it be?

- Is it the MIP to GeV conversion?
 - Changed the MIP2GeV parameter in the AHC2MIP2GeVConversion Processor in Digi to $0.2 \cdot \text{old value} = 0.2 \cdot 0.000470$

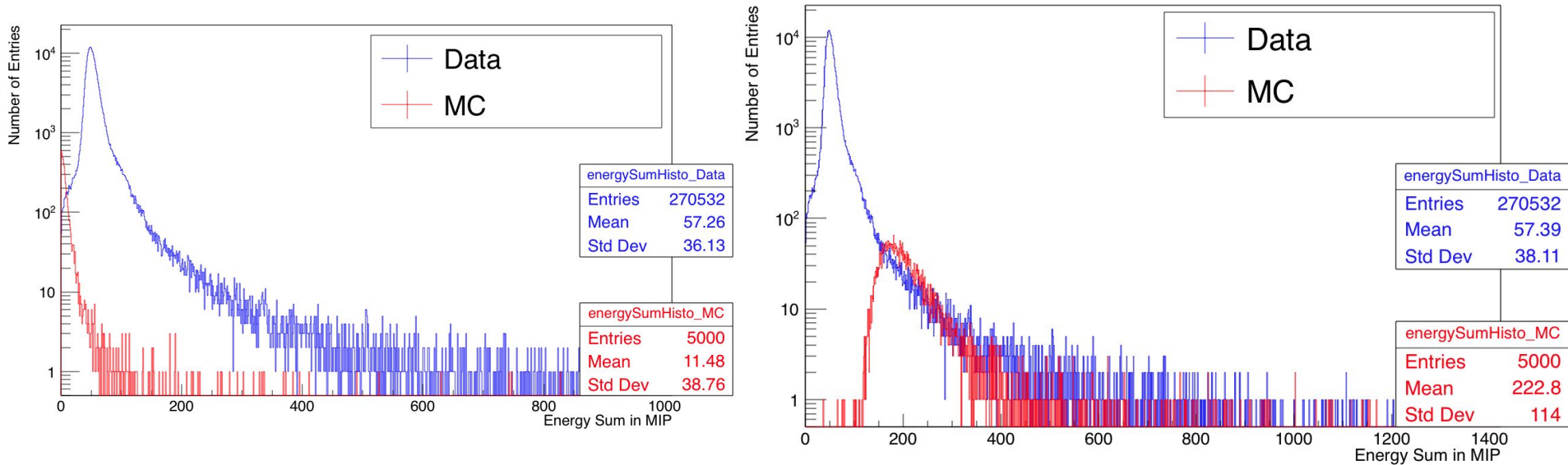
40 GeV muons, mip2gev/5



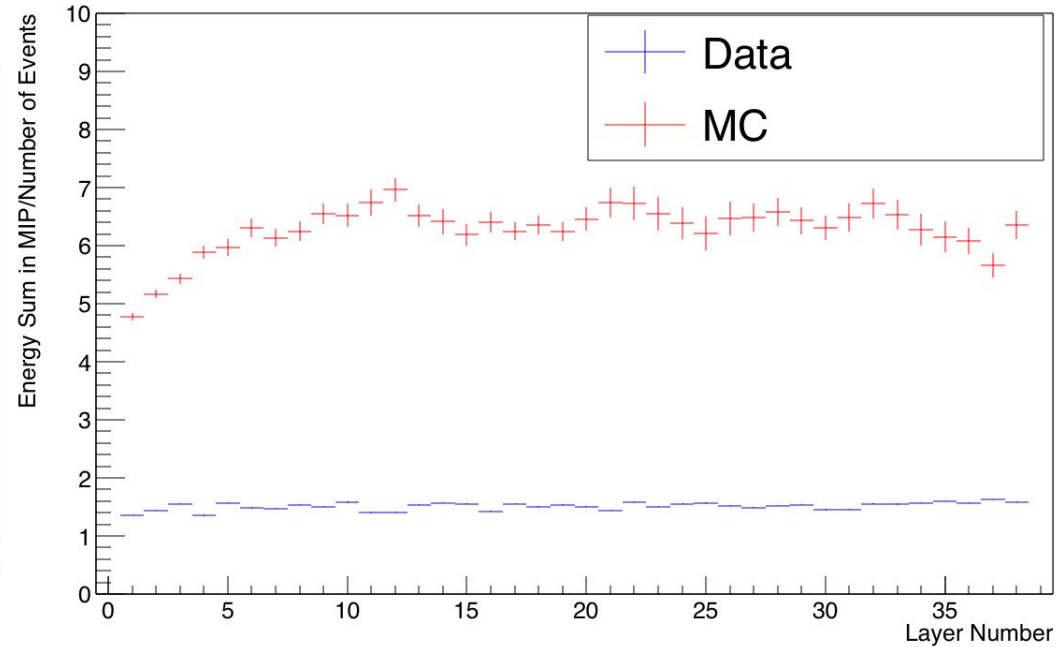
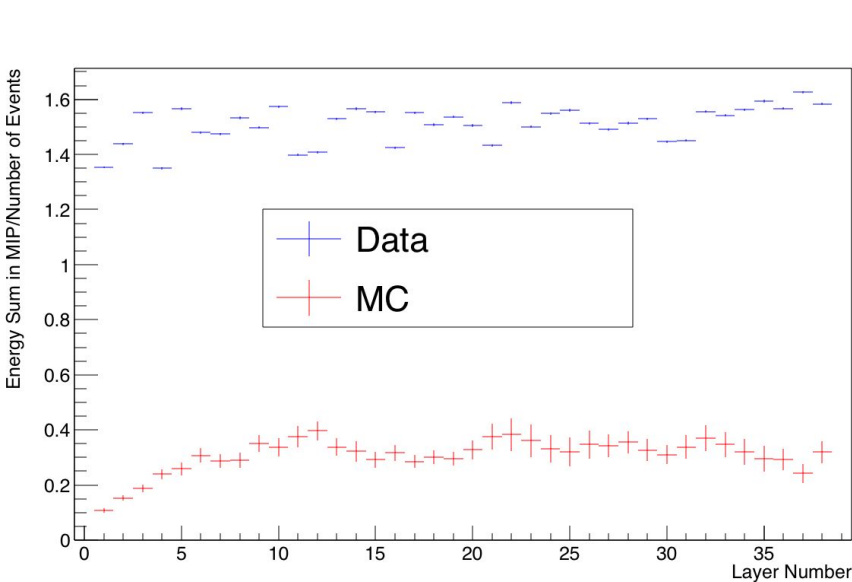
40 GeV muons, mip2gev/5



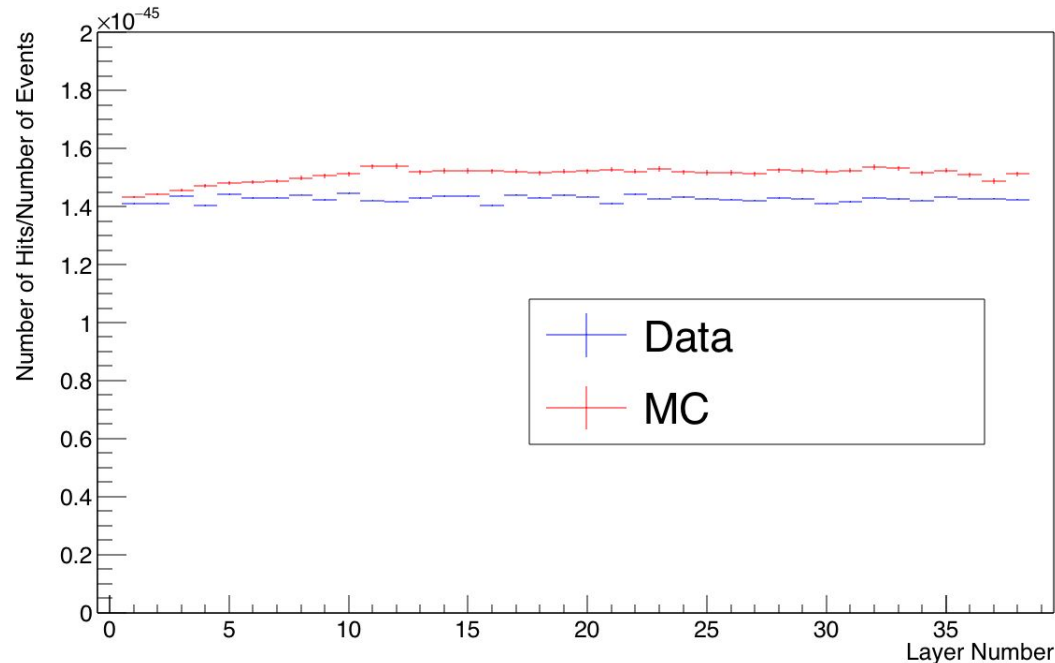
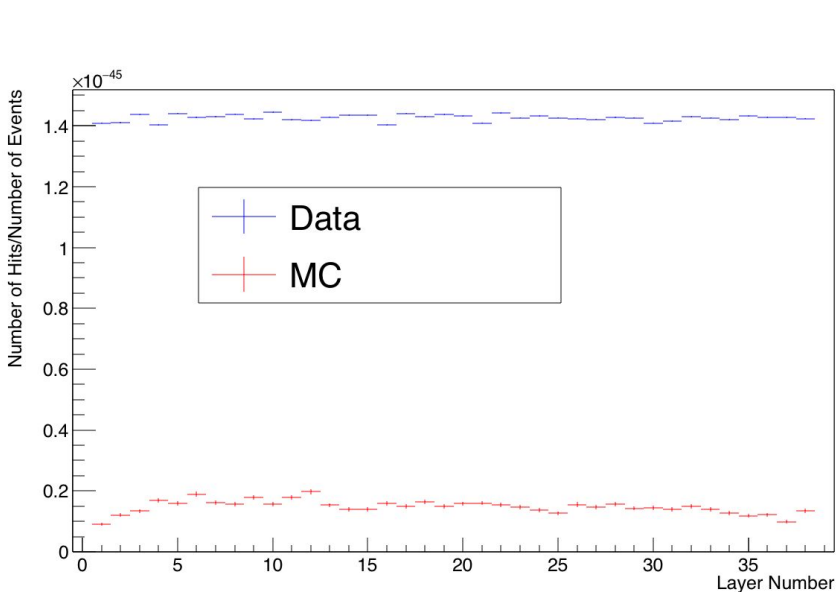
40 GeV muons, mip2gev/5



40 GeV muons, mip2gev/5



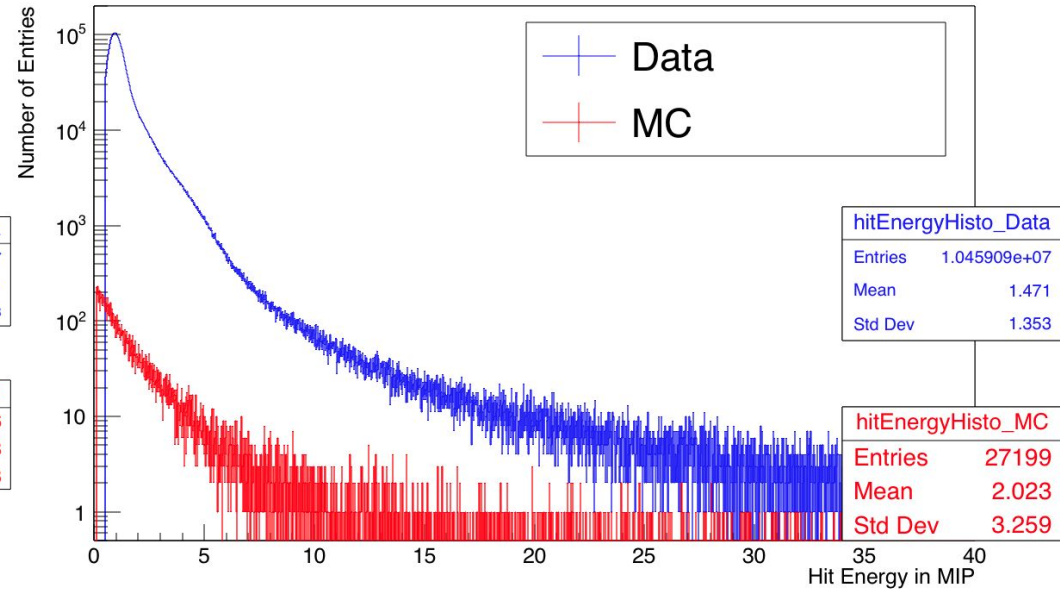
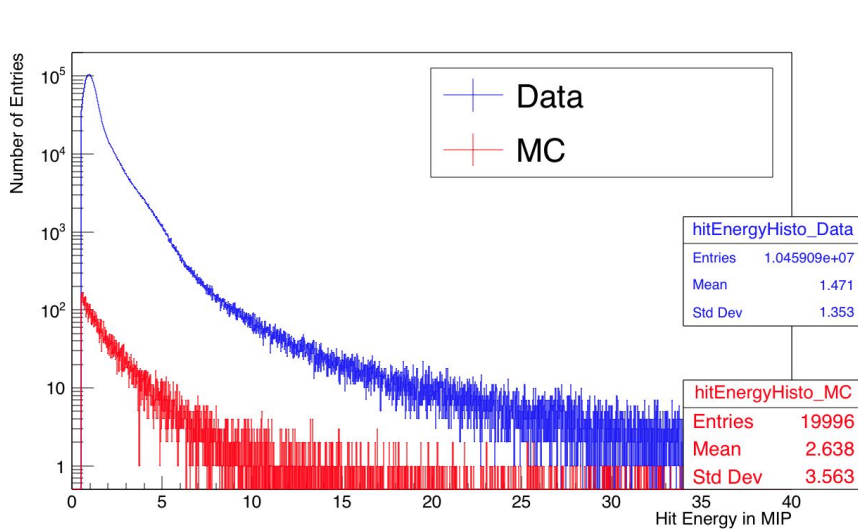
40 GeV muons, mip2gev/5



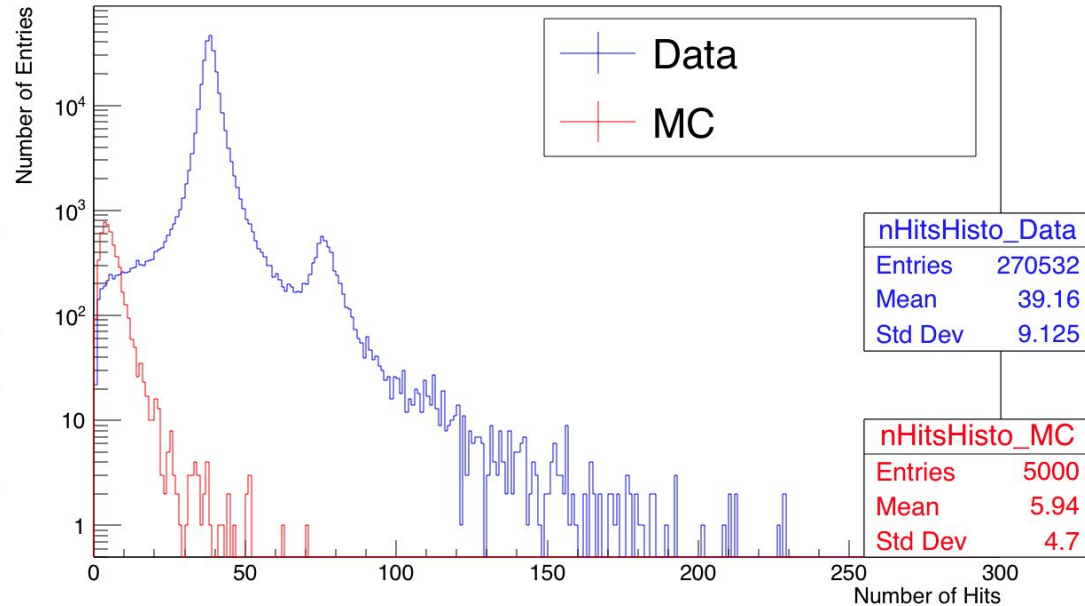
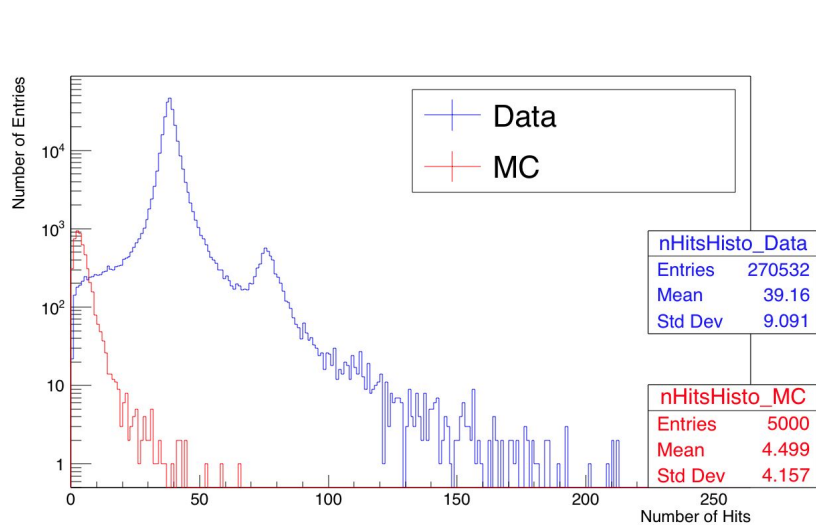
What can it be?

- Is it the MIP to GeV conversion?
 - Changed the MIP2GeV parameter in the Ahc2MIP2GeVConversion Processor in Digi to $0.2 \cdot \text{old value} = 0.2 \cdot 0.000470$
 - Gives us MIP peak but destroys energy values
- Is it the thresholds?
 - Changed the ROCThresholdProcessor_Threshold parameter in the Ahc2ROCThreshold Processor in Digi to 0.1
 - Changed the MipCut parameter in the Ahc2CalibrateProcessor in Reco to 0.1

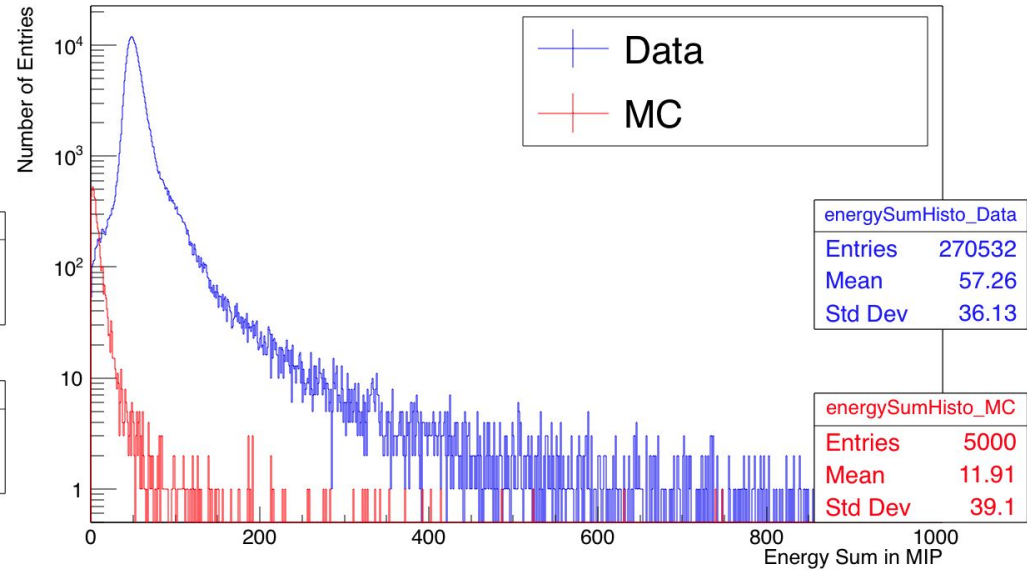
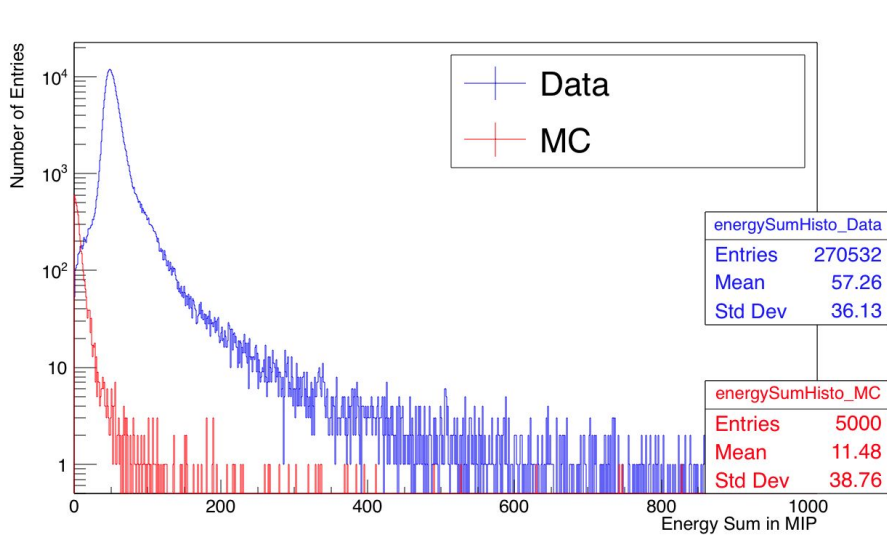
40 GeV muons, thresholds=0.1



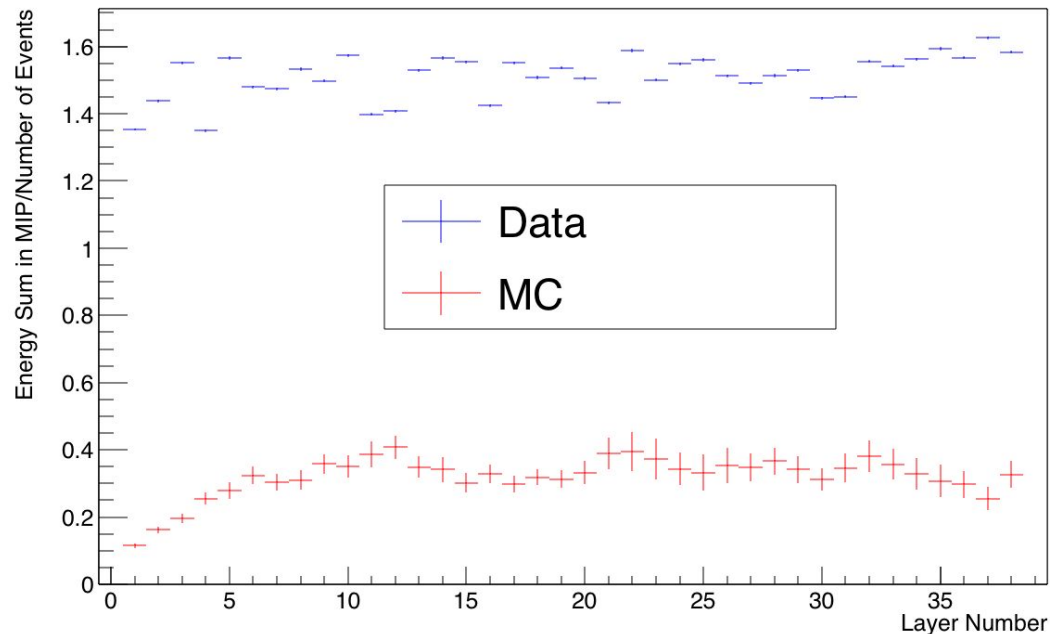
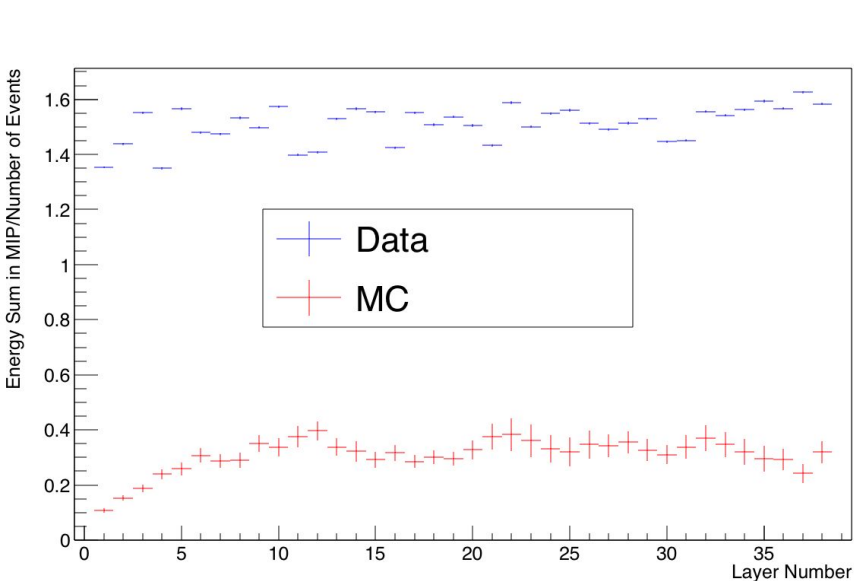
40 GeV muons, thresholds=0.1



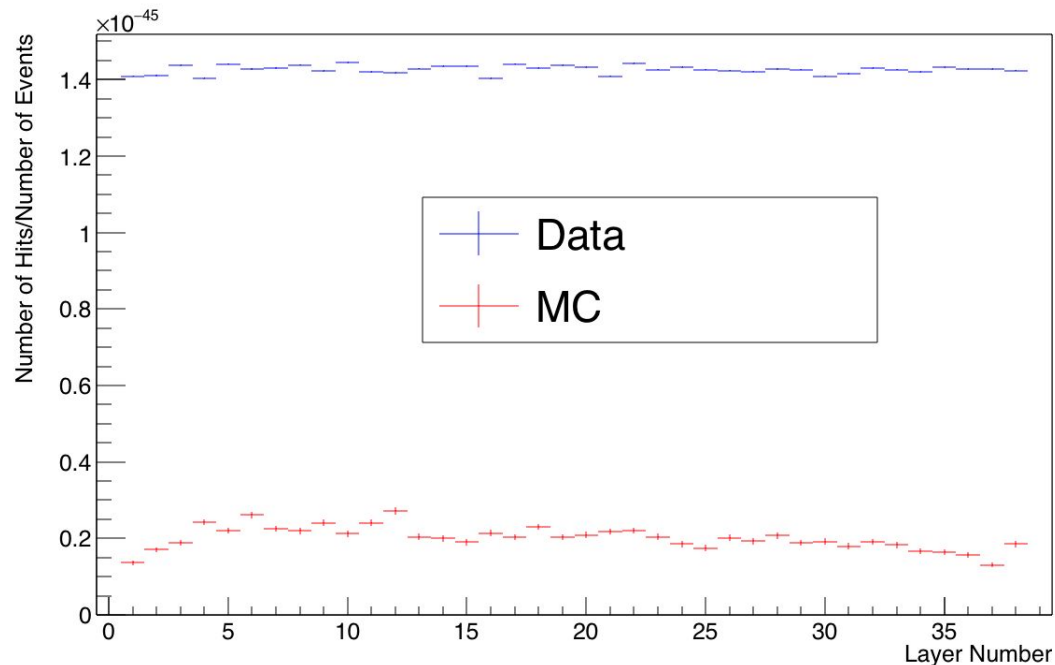
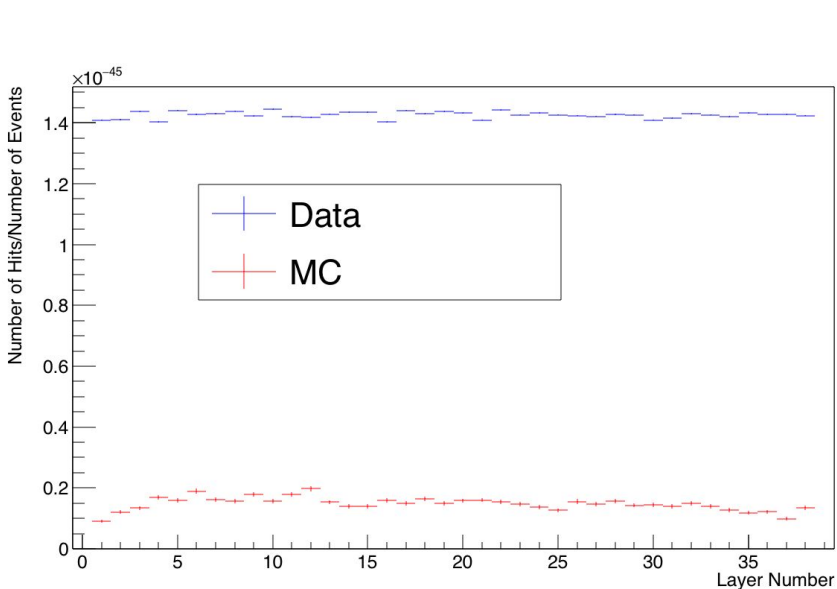
40 GeV muons, thresholds=0.1



40 GeV muons, thresholds=0.1



40 GeV muons, thresholds=0.1



What is the problem?

- Detector components and geometry of simulation look fine
 - Also looked at the pre-reconstruction sim root files: look fine
 - Using HEAD or Confluence database tags makes no difference
 - MIP2GeV adaptation gives MIP peak but destroys energy values
 - Threshold adaptation does not change anything
 - Christian is working on getting couts during digi and reco
- **What is the problem?**