

# No success in improving the muon simulation



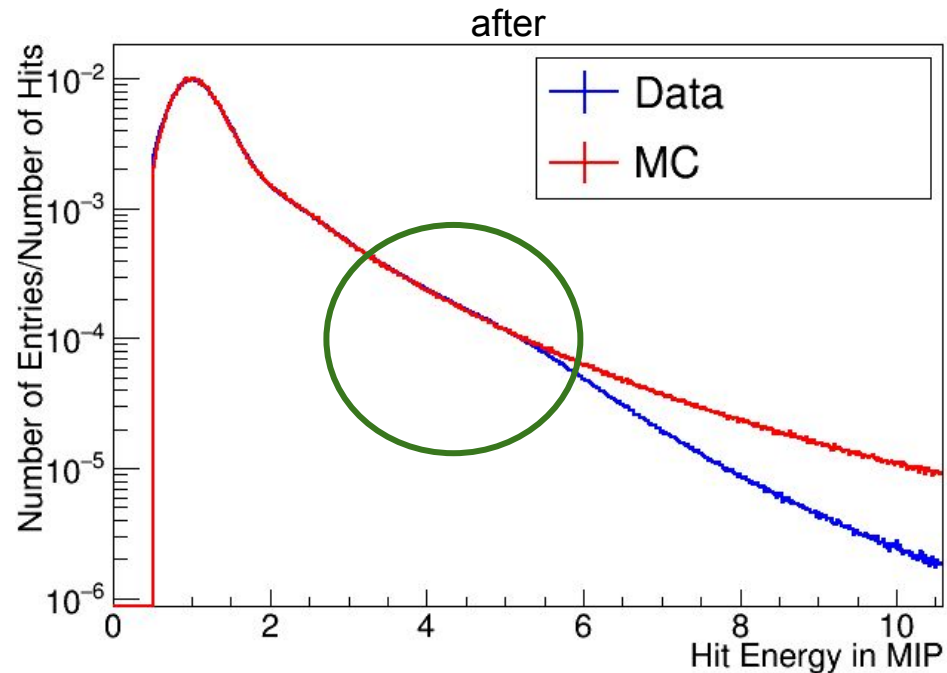
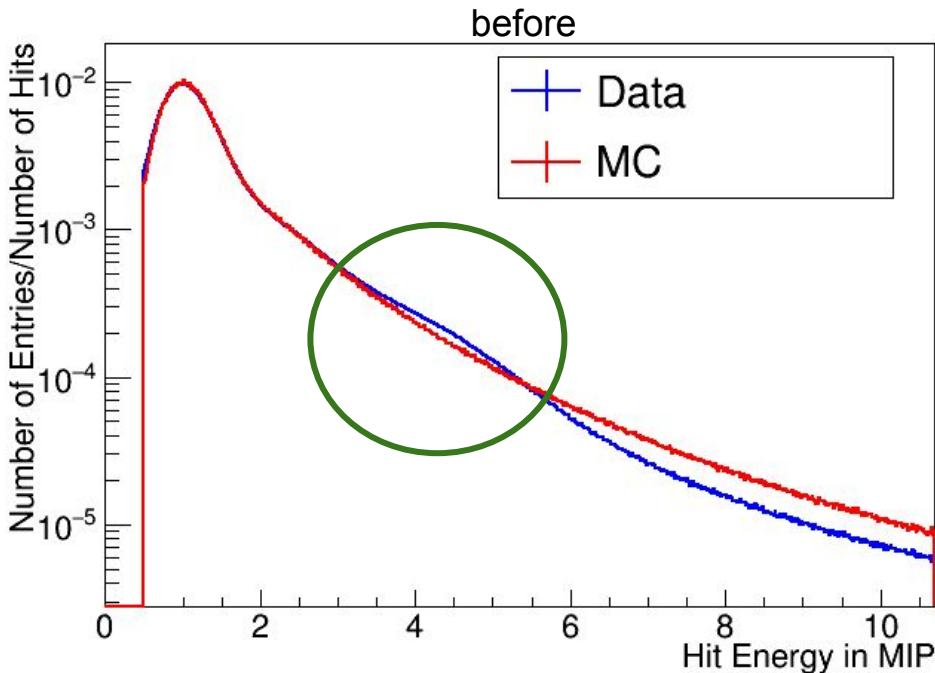
Saiva Huck  
University of Hamburg

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CALICE AHCAL main meeting  
18.12.2018

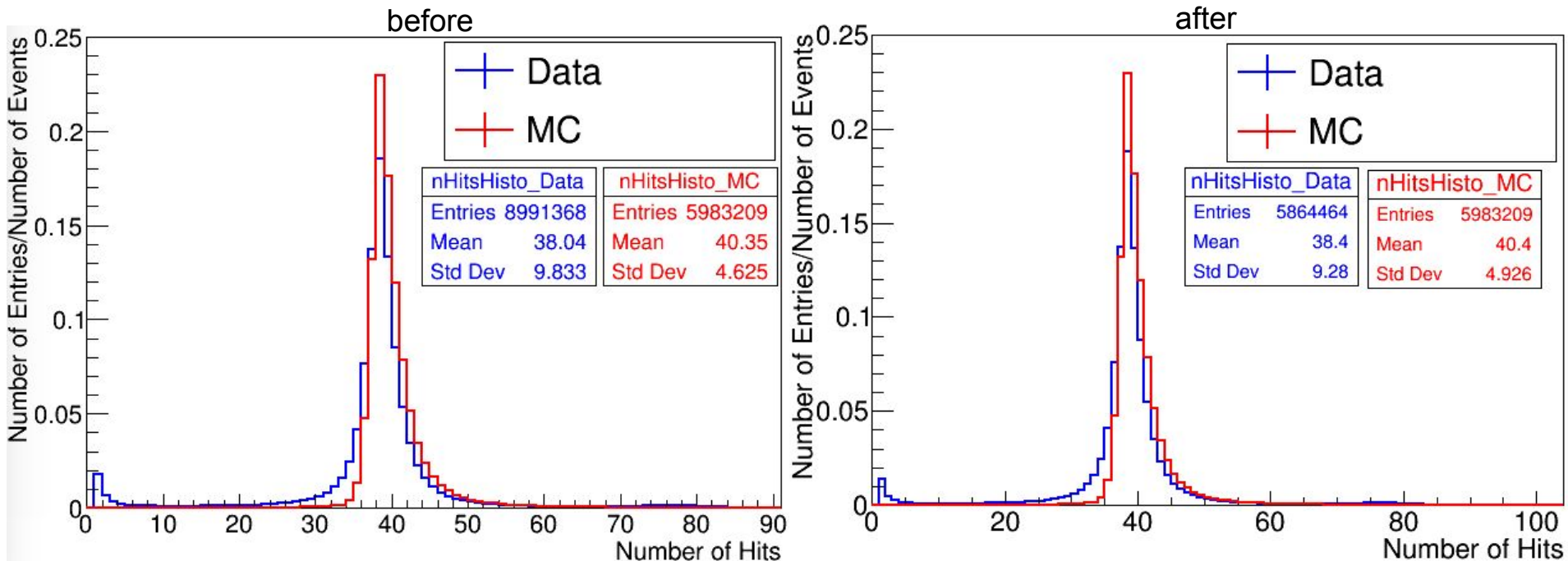
# Muon simulation studies

- Reconstruction of intercalibration runs for data
  - Using only HG data



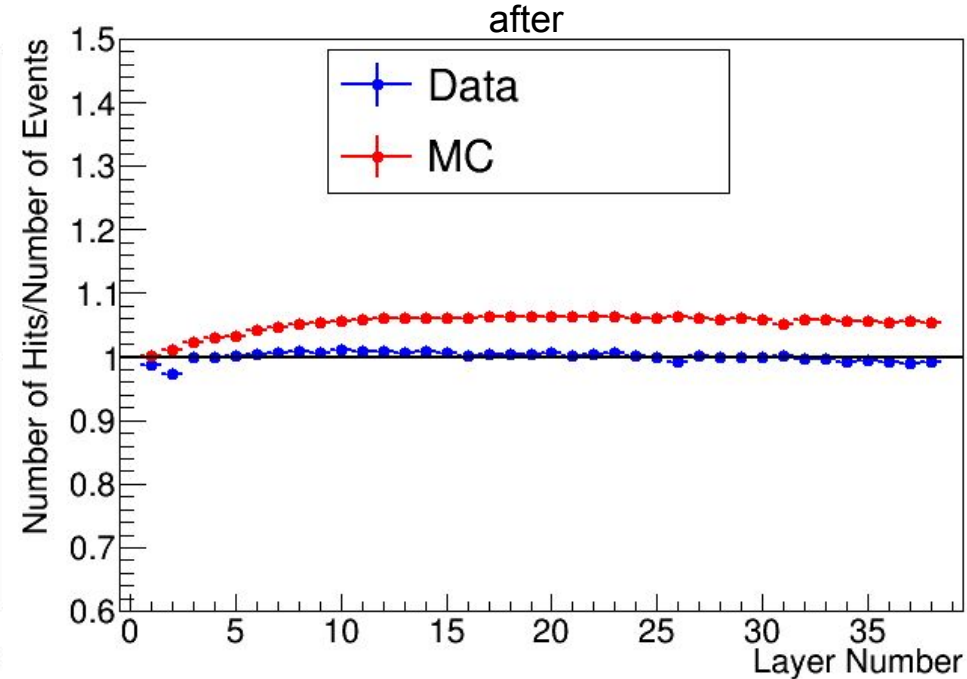
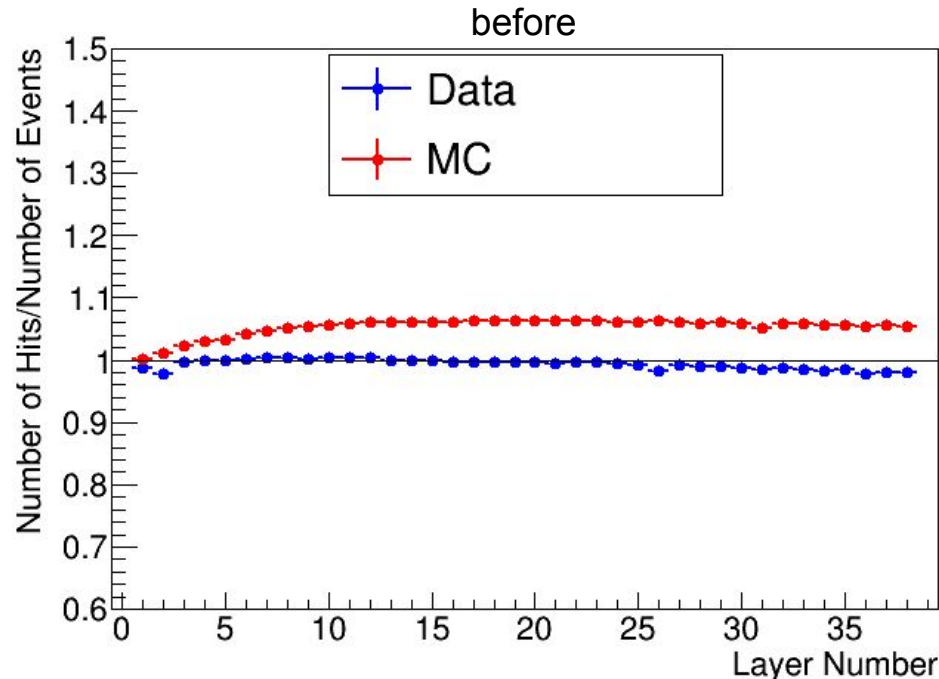
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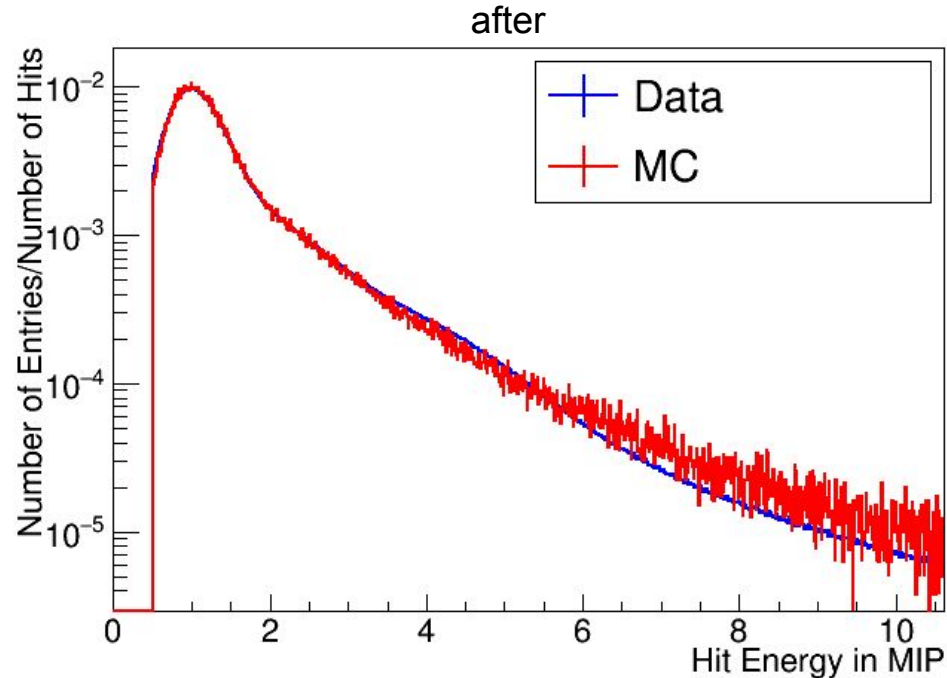
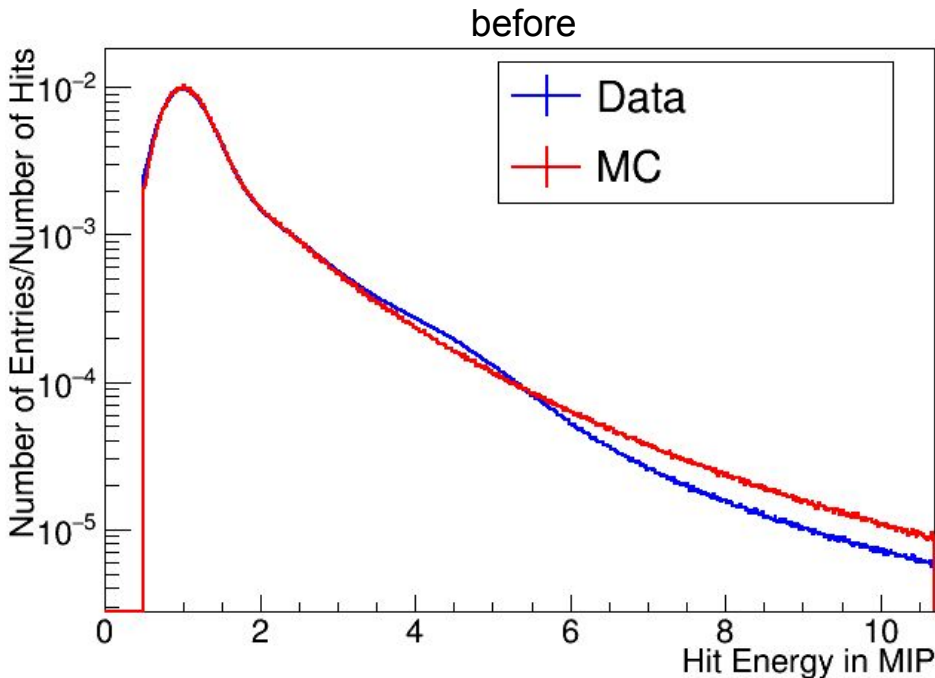
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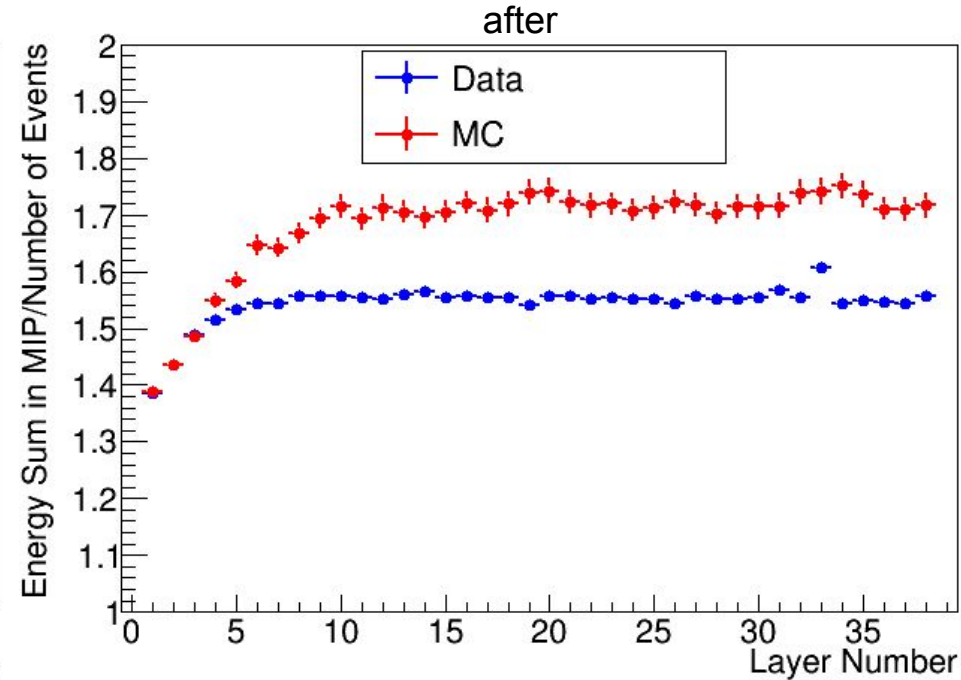
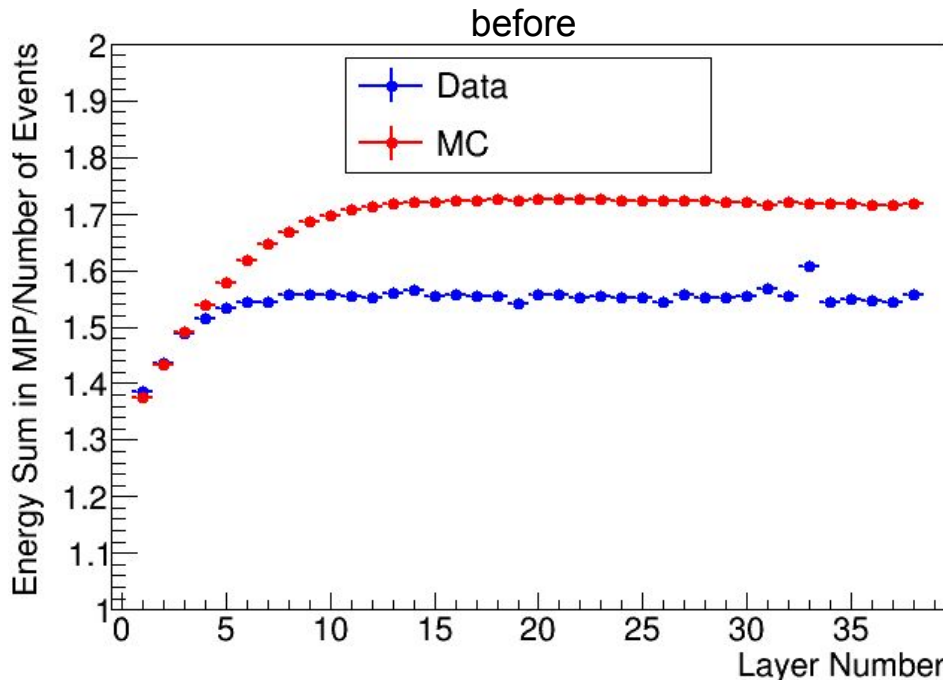
# Muon simulation studies

- Changing of the minimum kinetic energy for cut-off in the simulation
  - Both in scintillator material and in the steel



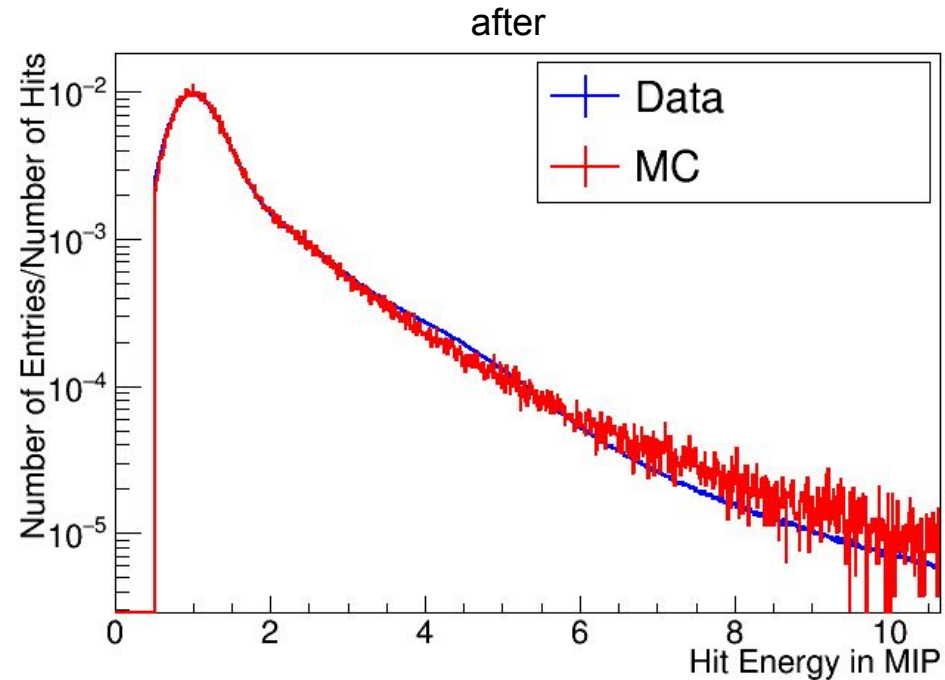
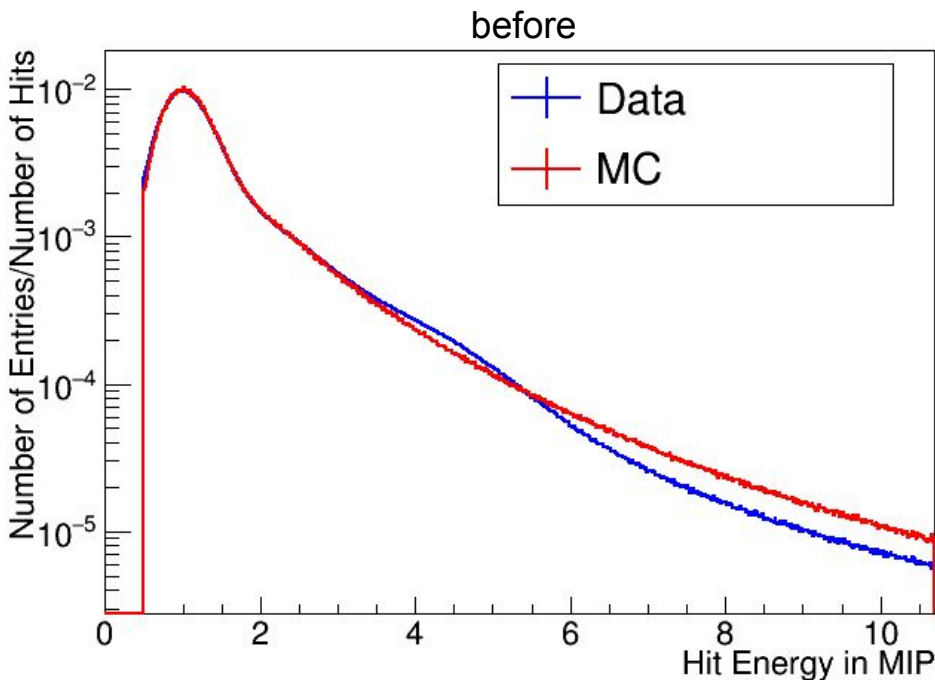
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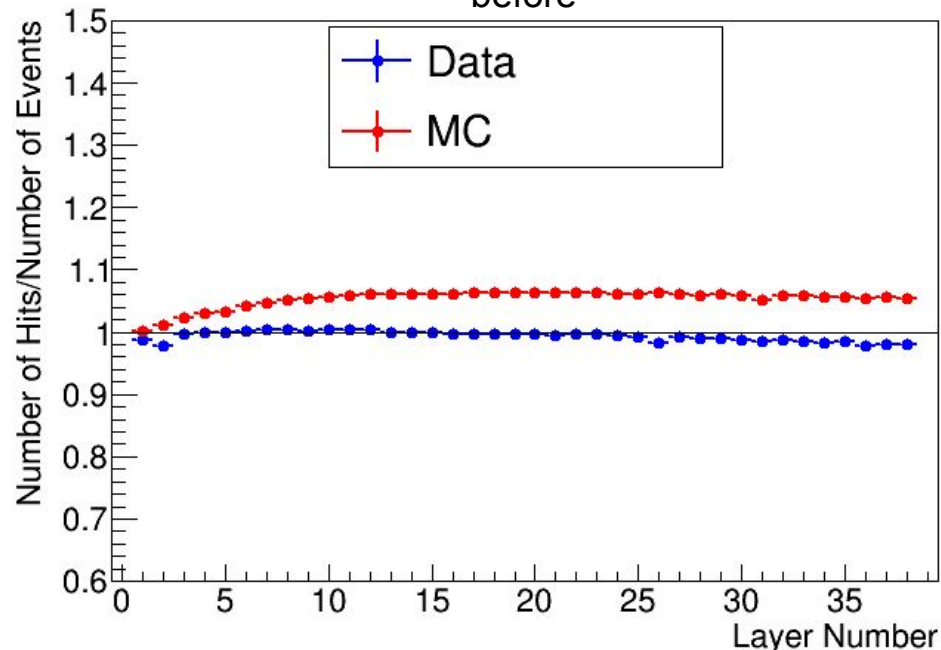
- Using different physics lists
  - Also QGSP\_BERT\_HP\_EMY for optimized treatment of em processes



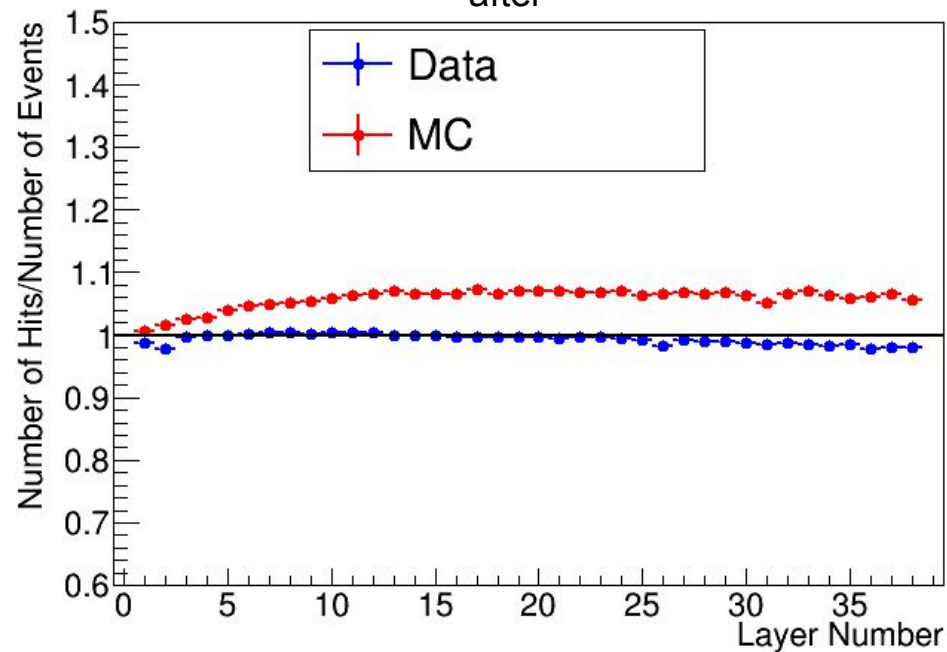
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- Using different physics lists
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before



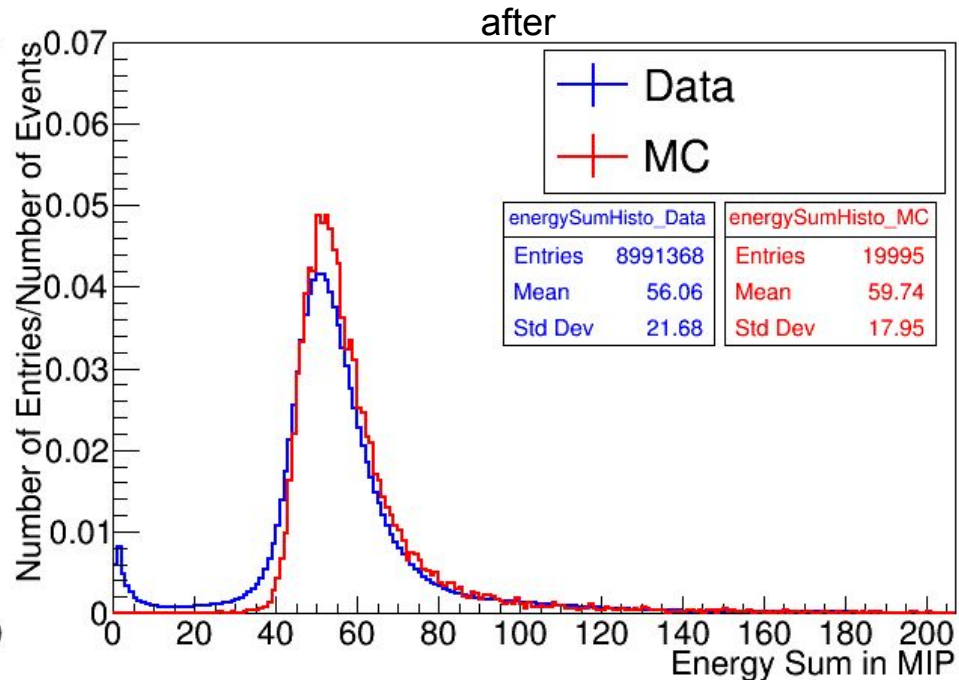
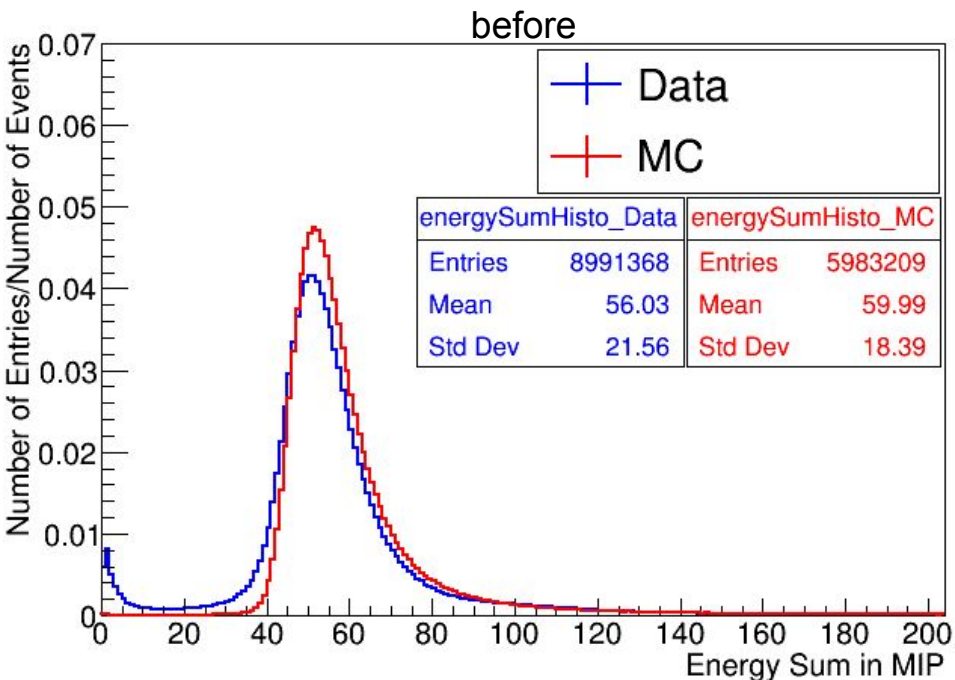
after





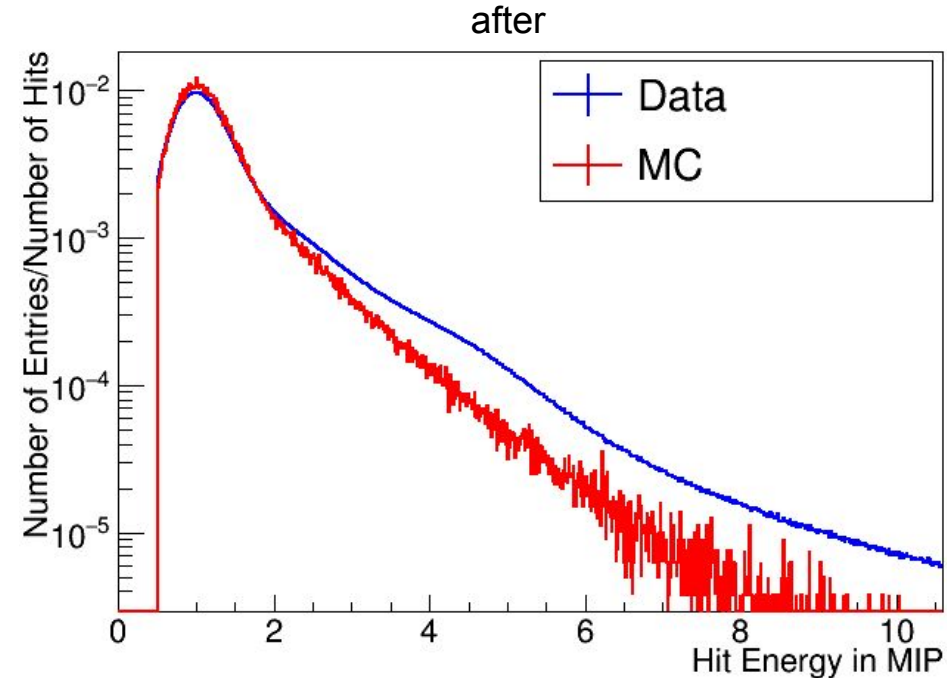
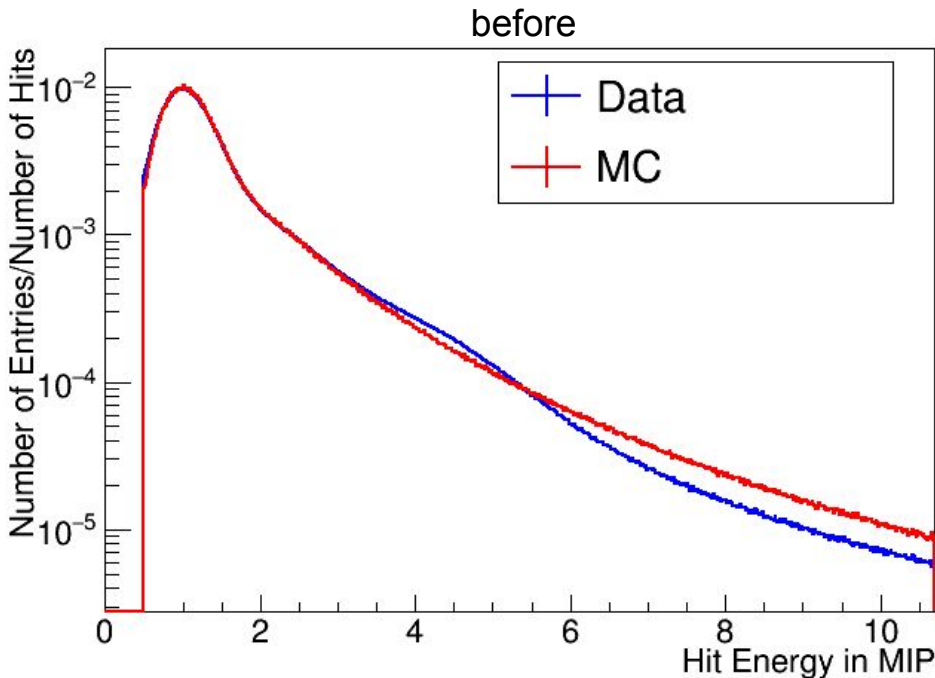
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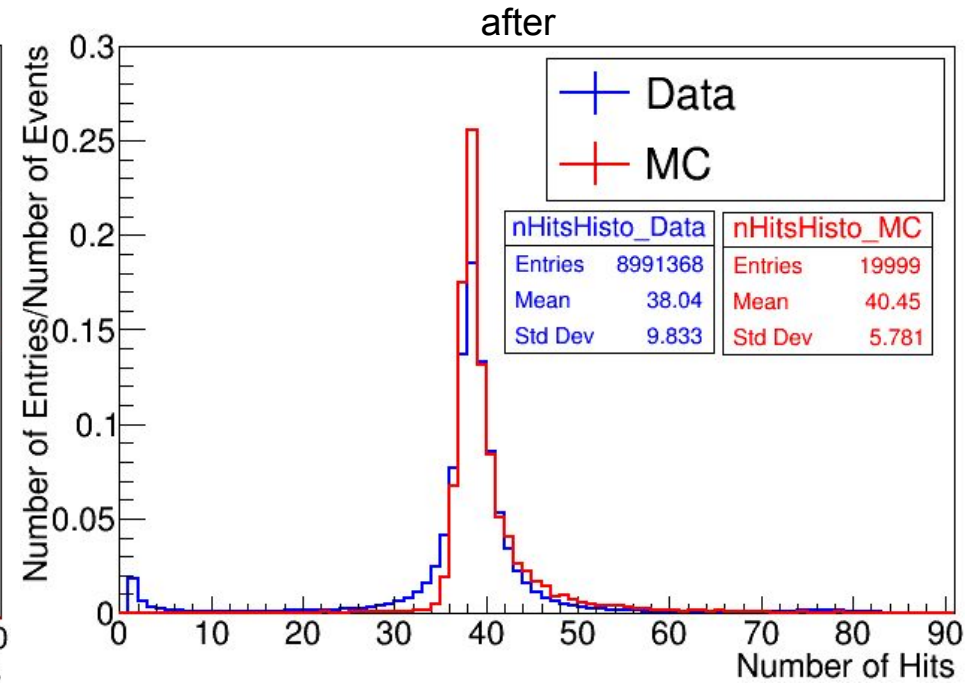
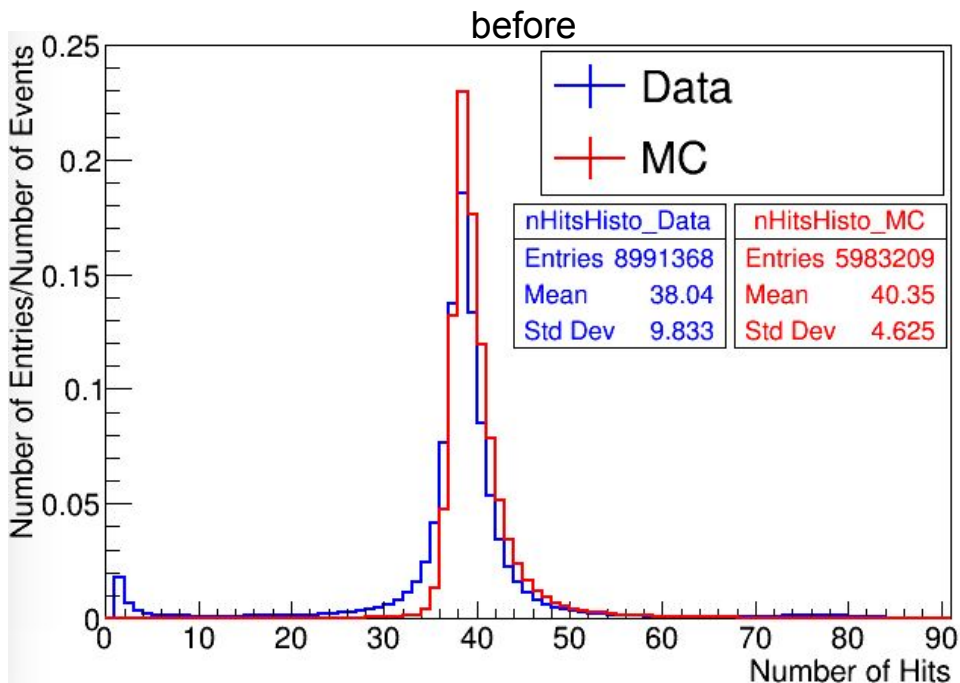
# Muon simulation studies

- Changing the material in the simulation
  - Air instead of steel for the 38 layers



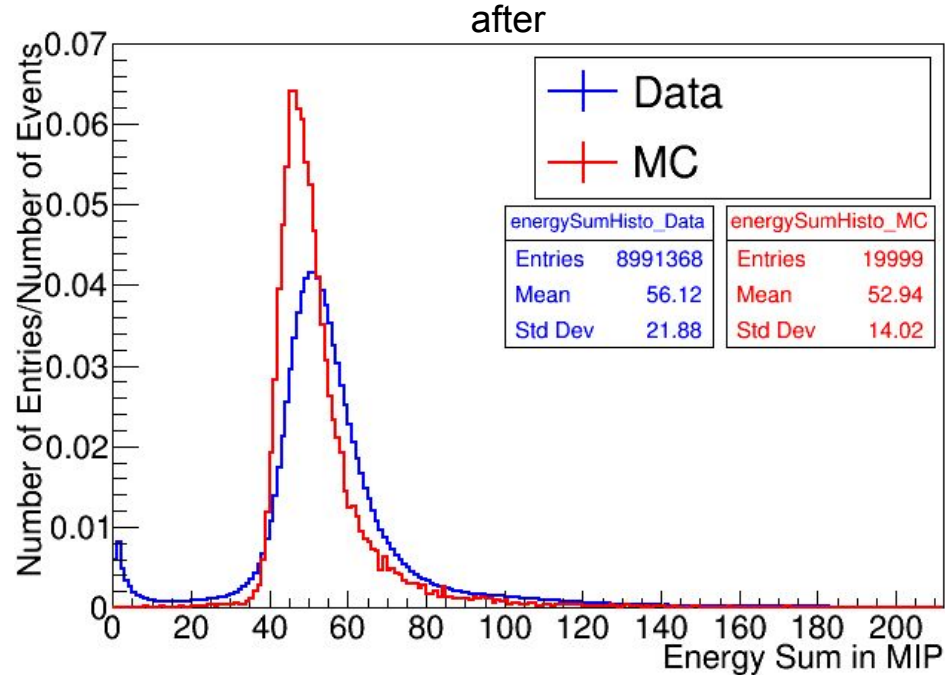
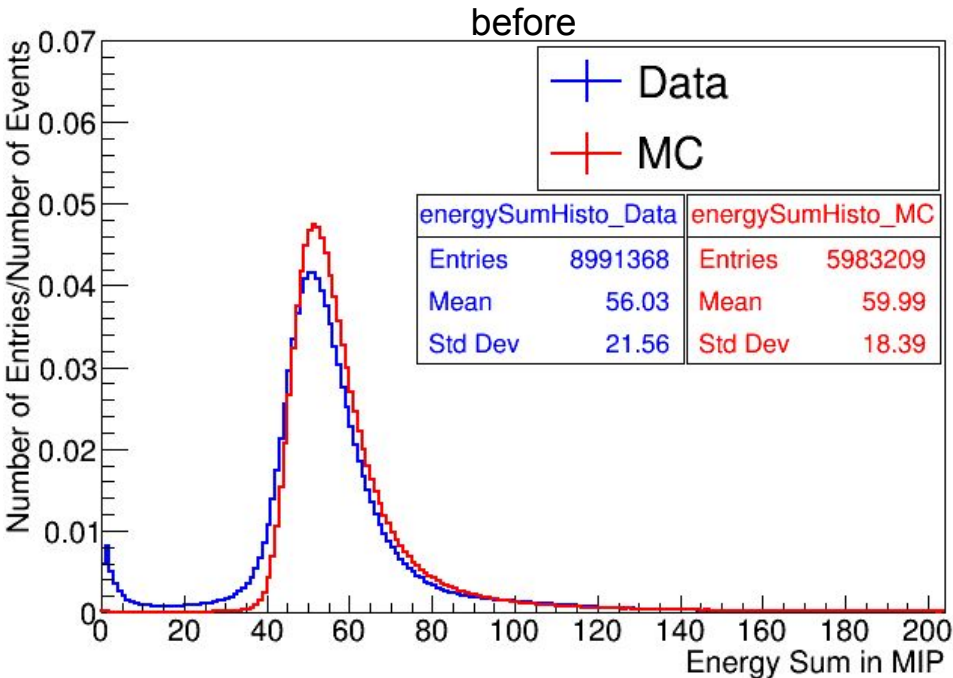
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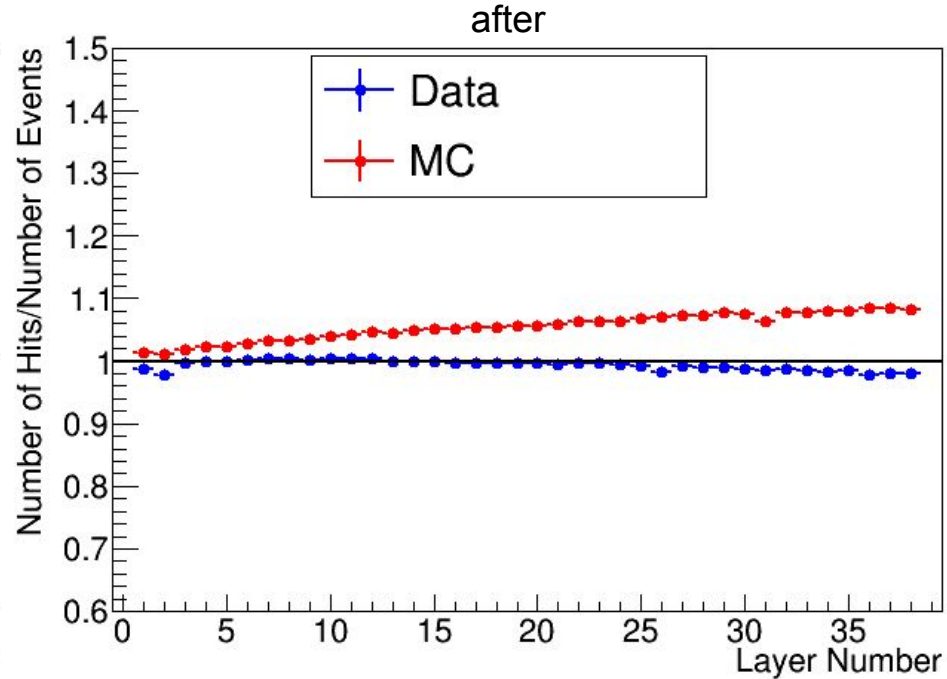
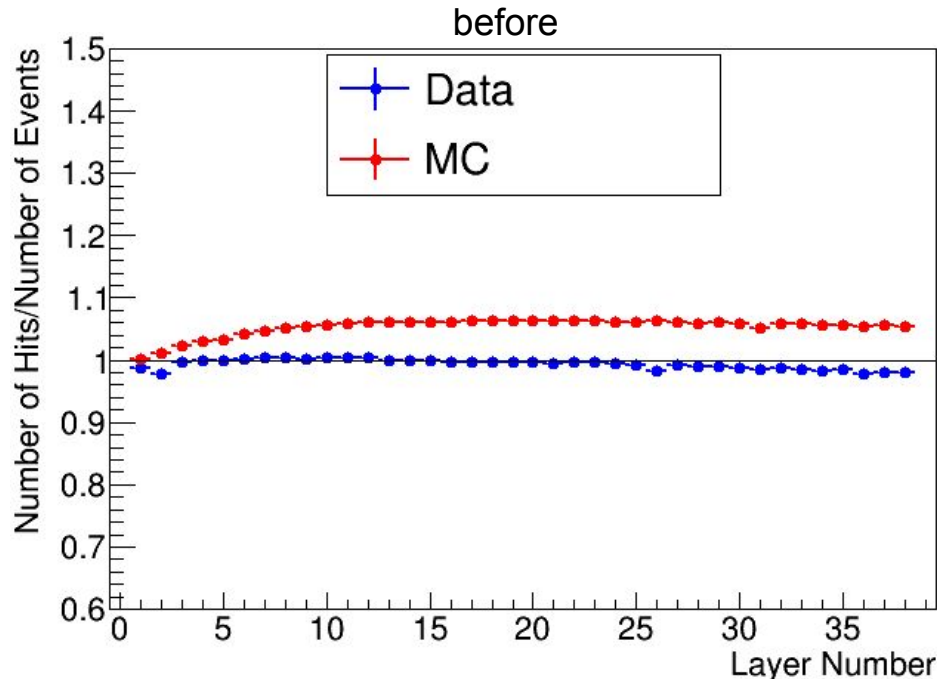
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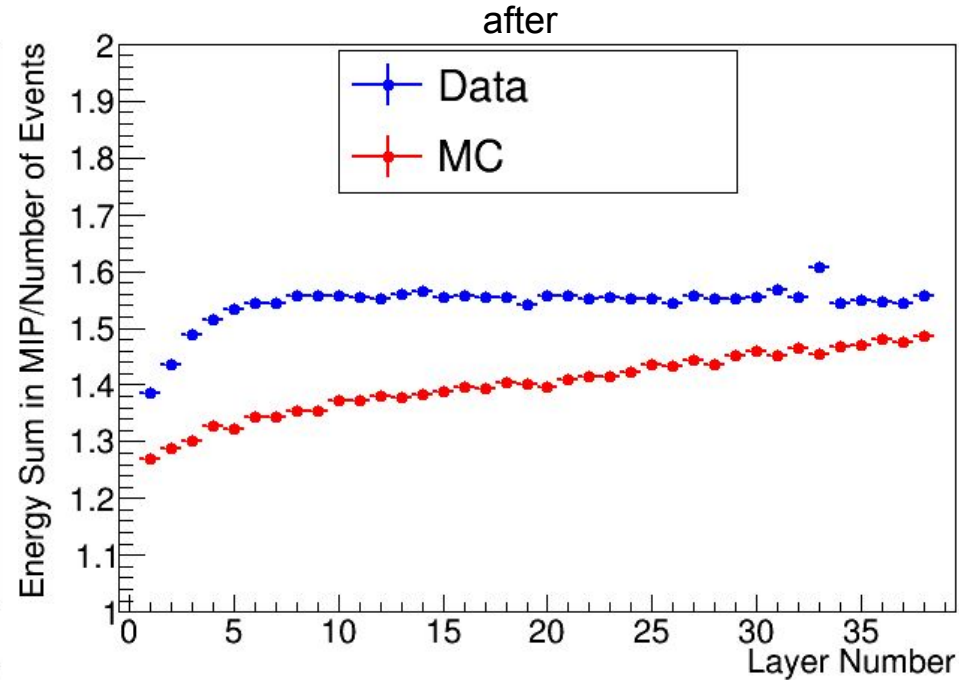
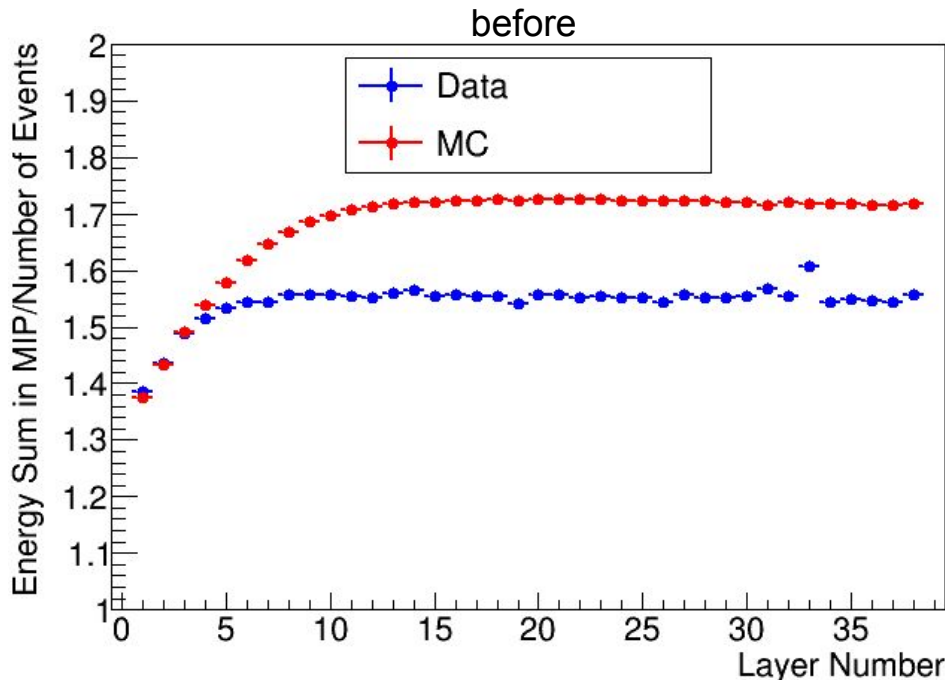
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# Muon simulation studies

- Changing the material in the simulation
  - Air instead of steel for the 38 layers



- Learned to reconstruct intercalibration runs
- Learned several new features one can change in the simulation
  - Minimum energy for cut-off
  - Starting distance of beam from front of detector
  - Different physics lists (QGSP\_BERT\_HP\_EMY for optimized low em treatment)
  - Exchanging materials
  - Material composition (to be continued)

- Learned to reconstruct intercalibration runs
- Learned several new features one can change in the simulation
- No success in improving the muon simulation
- But some new interesting features



# Backup

