First look at simulations with tracking in hadronic showers

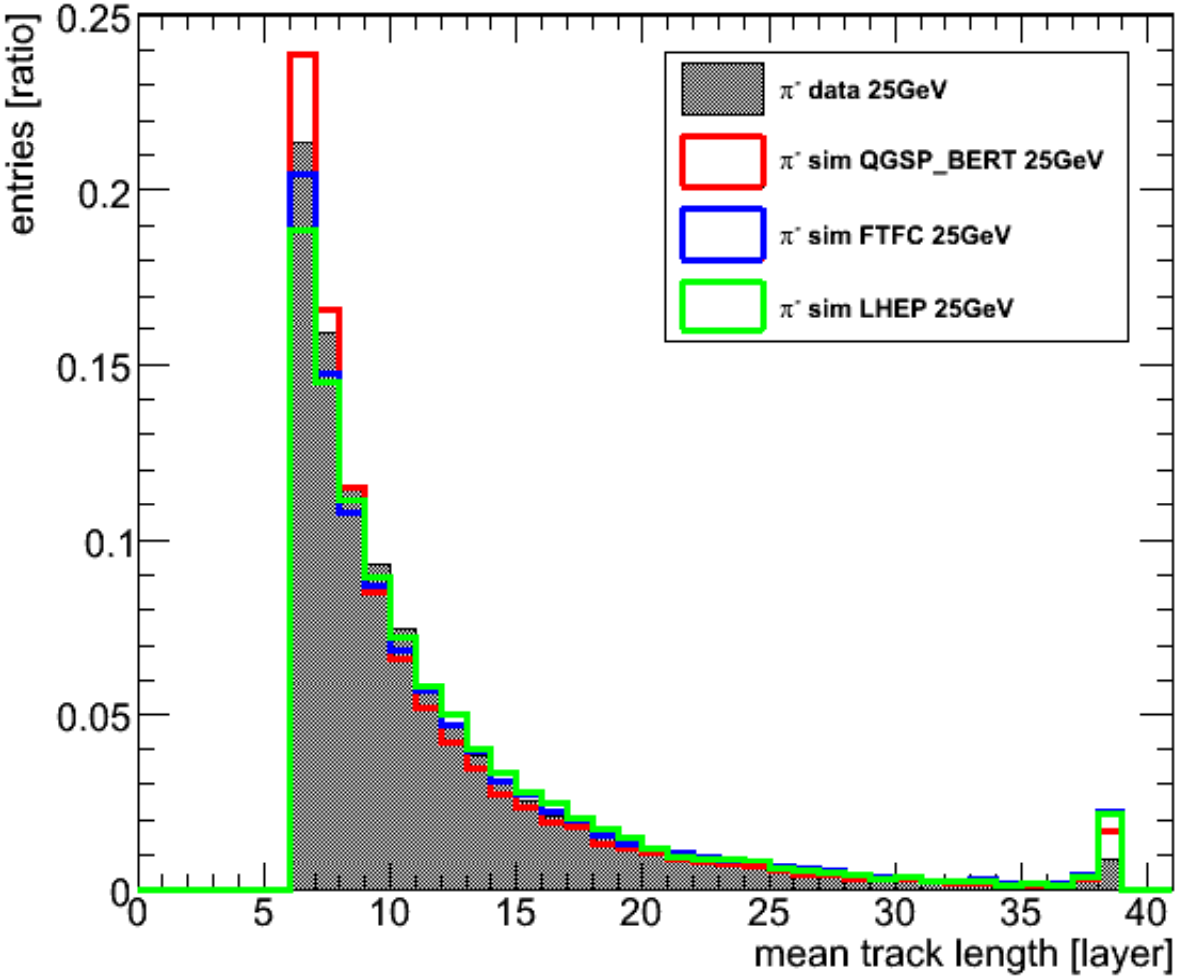
Lars Weuste
diploma student
MPI Munich

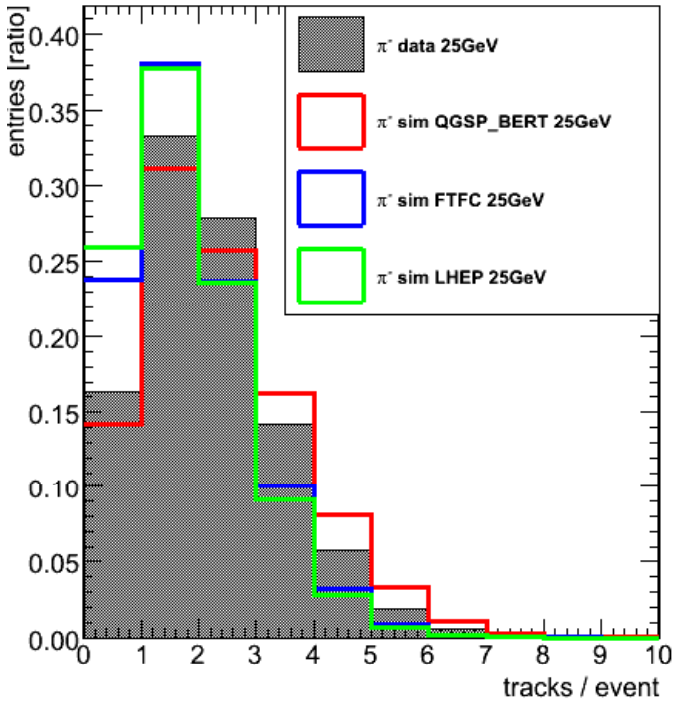
Overview

- Tracking in hadronic showers with AHCal (see CAN-013, DESY meeting dec 08)
- Tracking of simulated data

  Simulation parameters:
  - Model: *TB_Cern0707_dchxy_01*
  - For run: *330650*
  - 3 physics lists: *QGSP_BERT, FTFC, LHEP*
  - Full detector sim, but only HCal reconstructed
  - Still old MOKKA Version, but with *g10MaterialName g10_2.64gccm*

direct comparison @ 25 GeV





- comparison simulation and data: looks good
- QGSP_BERT seems to be best choice

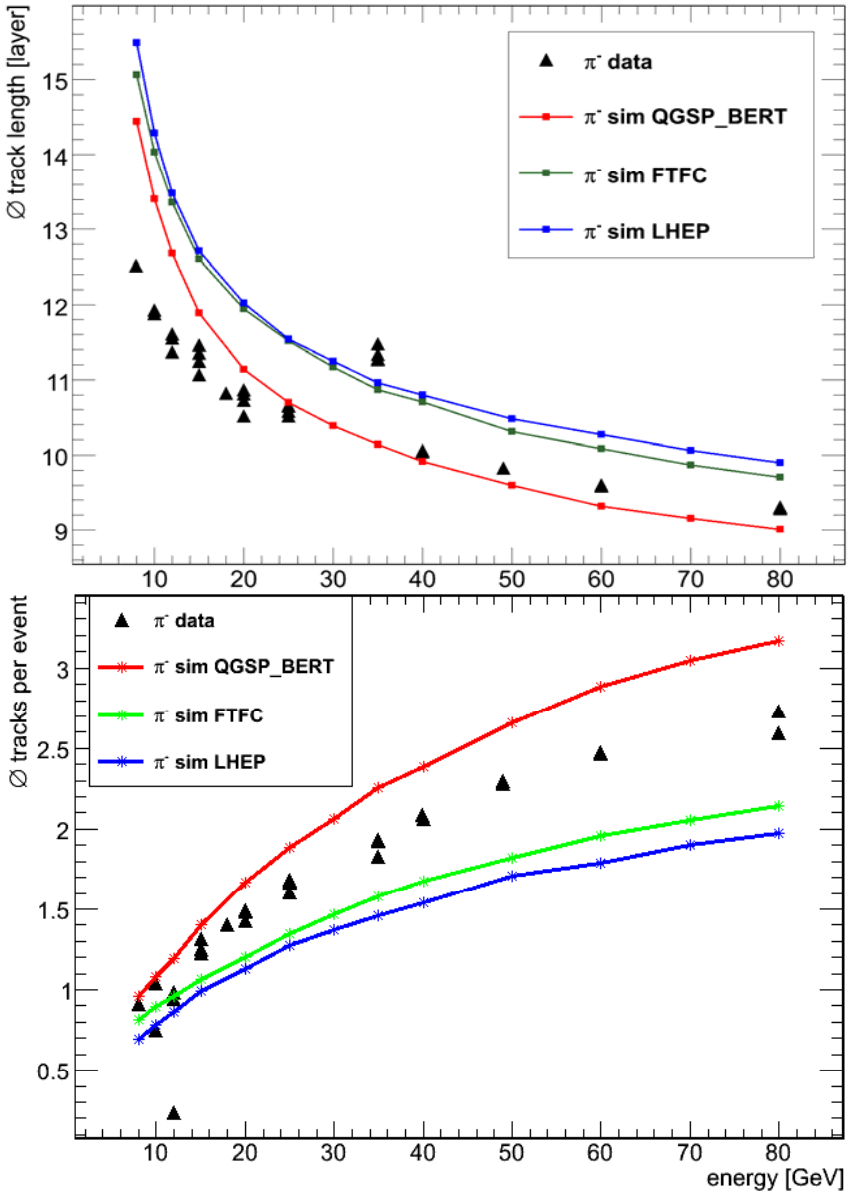
comparison: all energys

- simulated tracks longer @ low energy

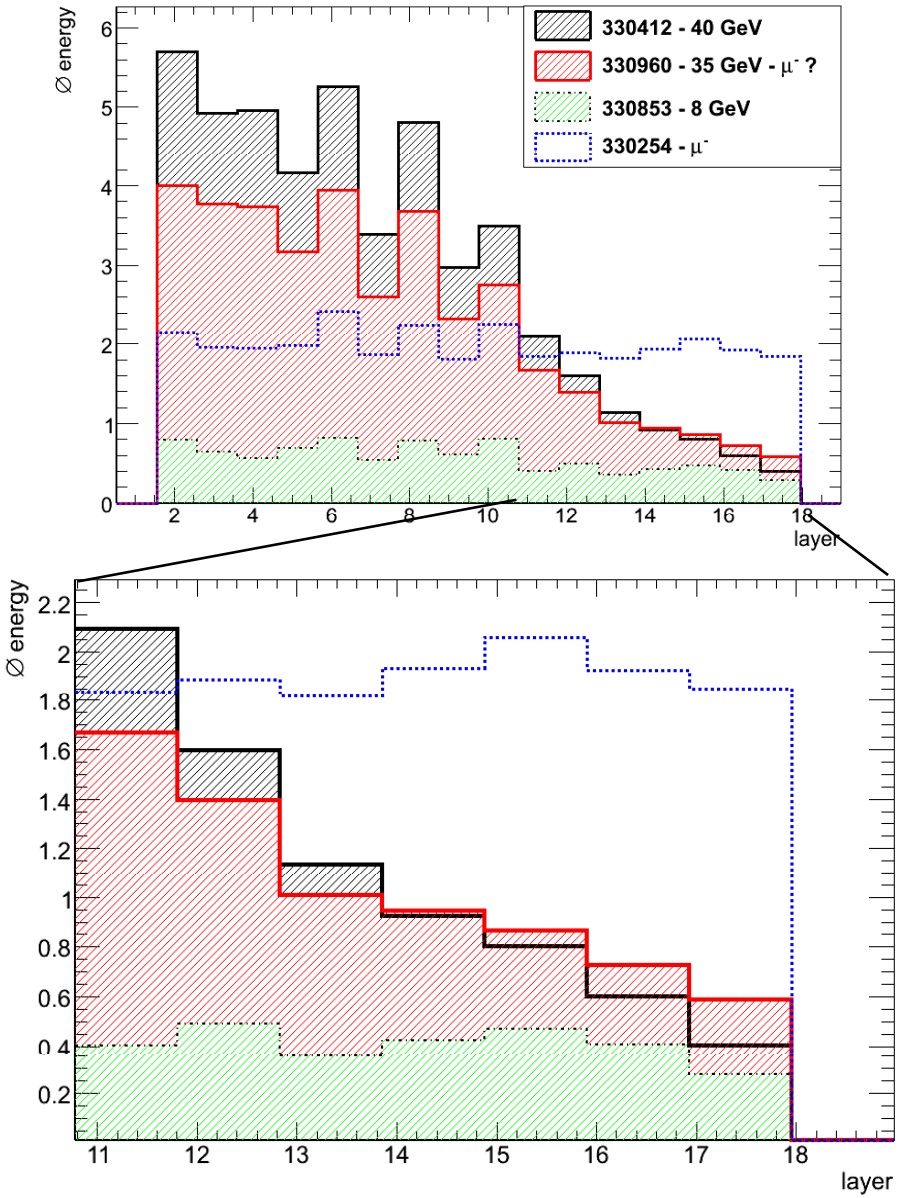
  possible reason:
  no noise @ simulation

- same trend
  → simulation seems ok

- peak @ 35GeV data:
  μ contamination?



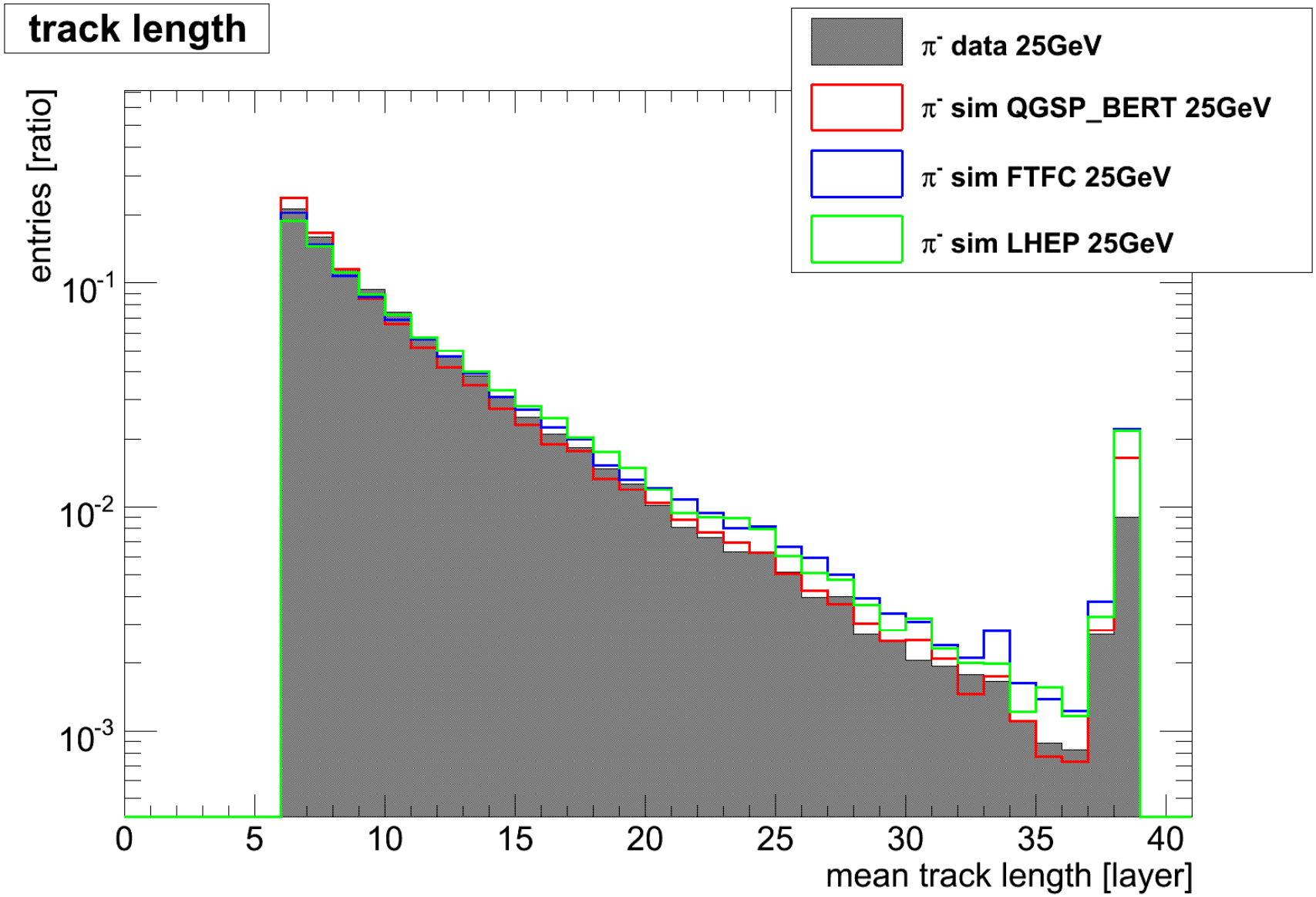
μ^- - contamination @ 35 GeV ?



- 3 π^- runs:
  - 8 GeV:
    just noise / background μ
  - 35 GeV:
    high μ - contamination?
  - 40 GeV:
    for comparison
- 40 GeV run drops faster than 35 GeV
  - ➔ higher μ - contamination

➔ As μ pass through the TcMt directly:
tagging possible! → TODO

Backup Slides


track length
π⁻ data 25GeV
π⁻ sim QGSP_BERT 25GeV
π⁻ sim FTFC 25GeV
π⁻ sim LHEP 25GeV
entries [ratio]
10⁻¹
10⁻²
10⁻³
0
5
10
15
20
25
30
35
40
mean track length [layer]