



Status of Hadron Analysis CERN 2007

Alexander Kaplan

University of Heidelberg / DESY FLC

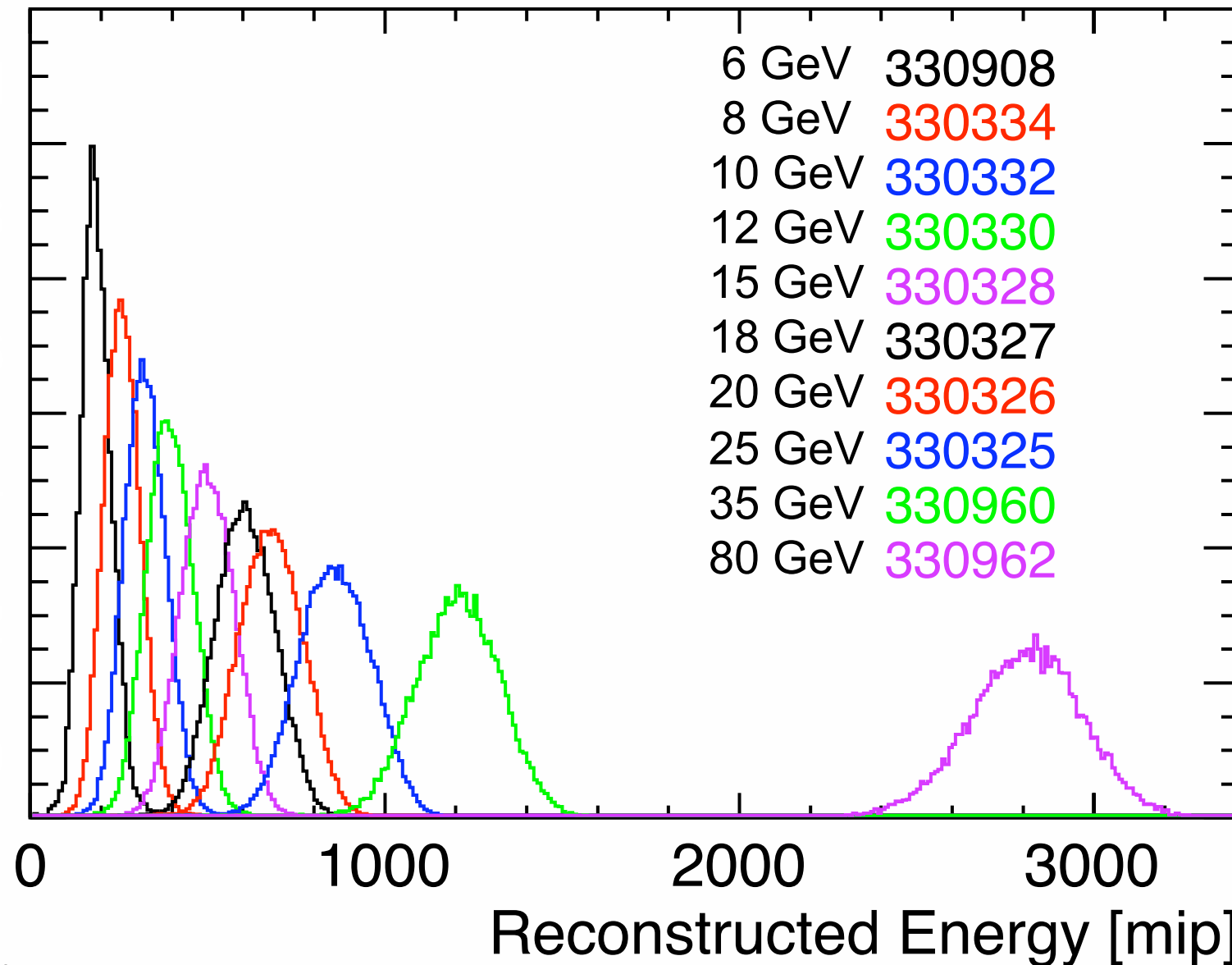
HCAL main meeting DESY Hamburg - July 16th 2009

Overview

- Using:
 - Temperature correction
 - Marina's Primary Track Finder
- Data
 - Linearity, Resolution
 - Longitudinal profiles
- Monte Carlo
 - Physics Lists:
LHEP, QGSP_BERT, FTF_BIC, FTFP_BERT,
QGS_BIC, QGSC_BERT
 - New absorber thickness included
 - Comparison of energy scale
 - Comparison of longitudinal profile

π^- Runs at $x=0, y=0, \text{rot}=0$

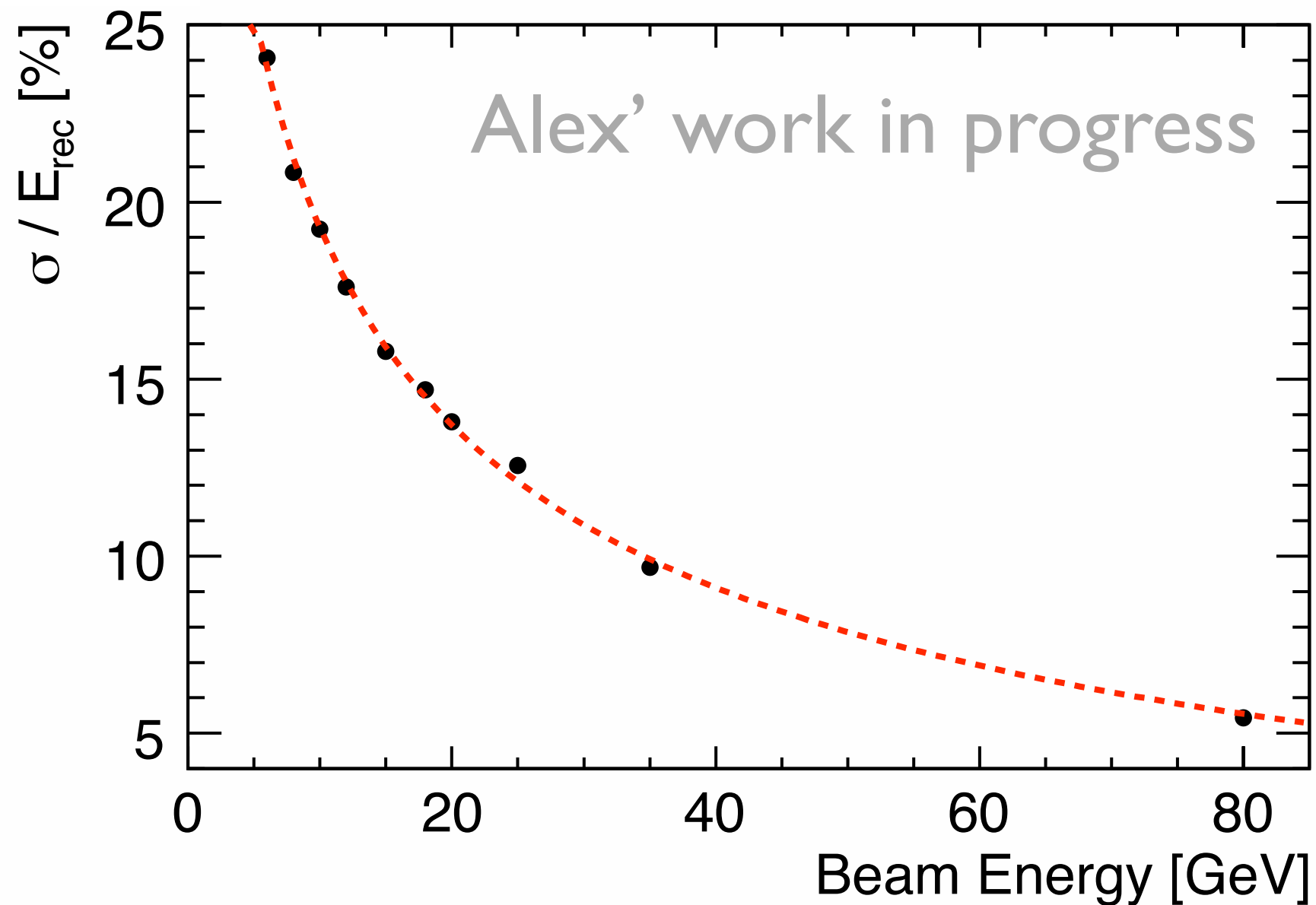
ahc_energySum



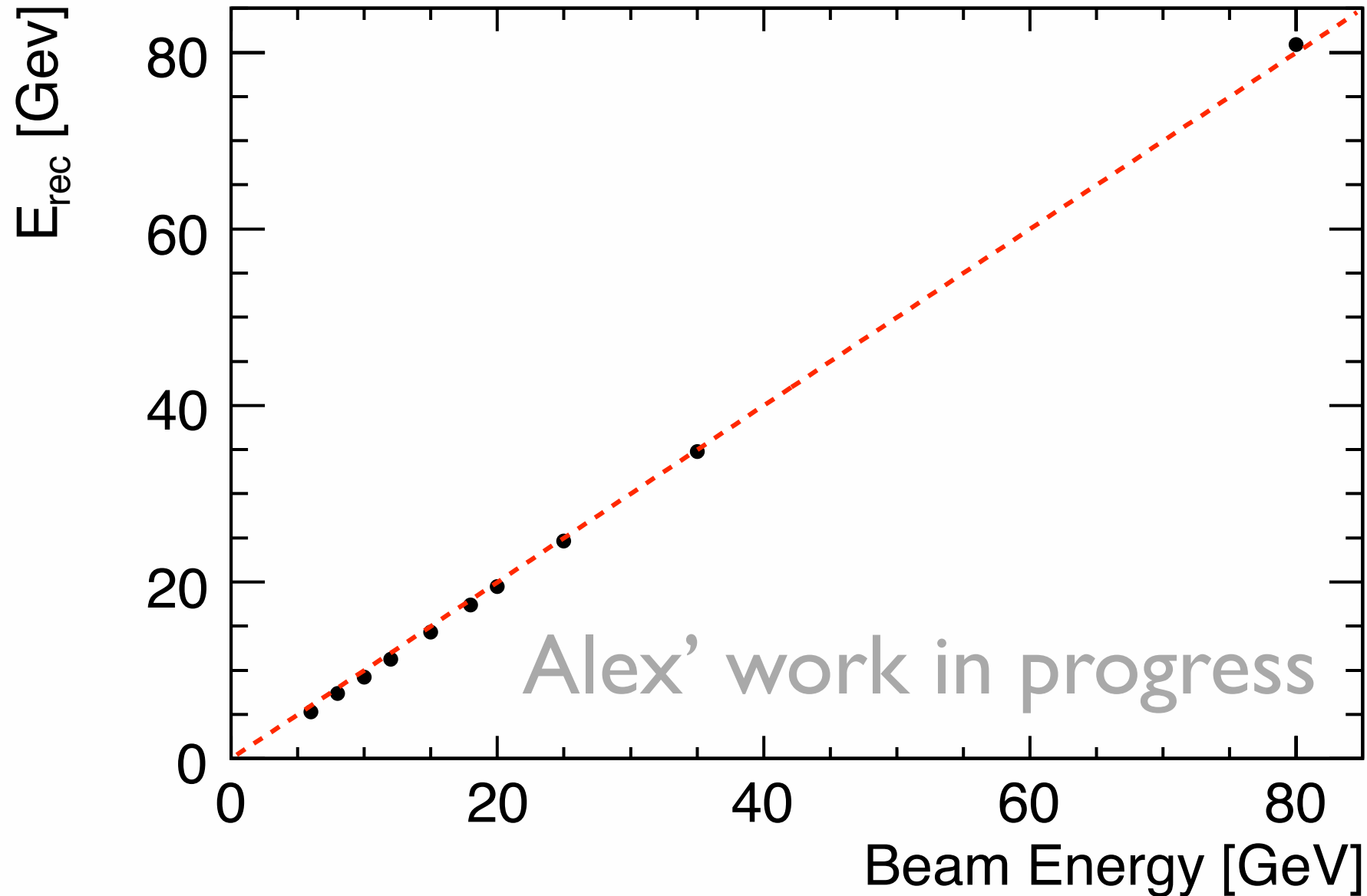
Cuts used:

“emc_nHits<50 && tcm_nHits<18 && ptf_calor==1”

Data: Resolution

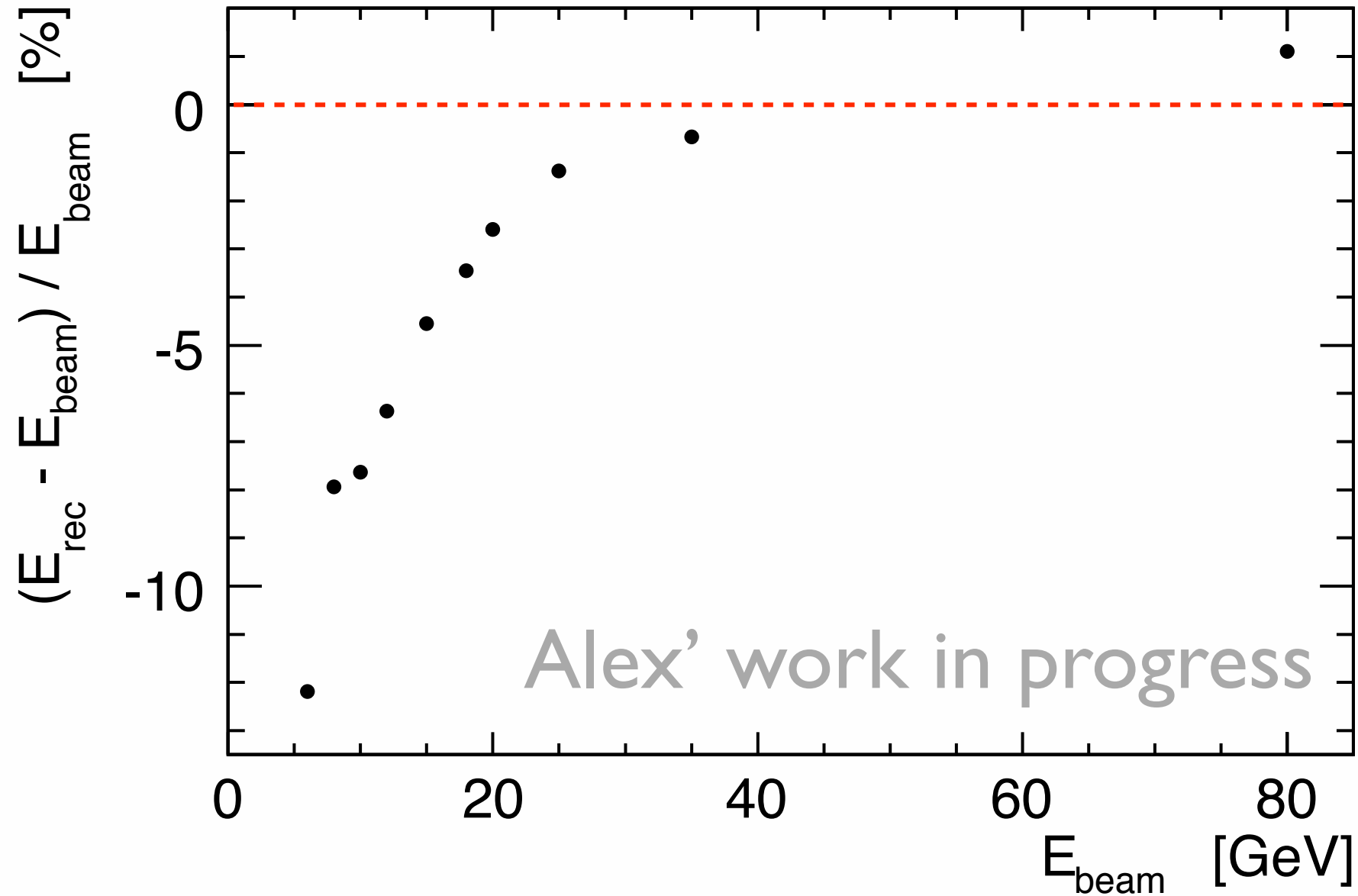


Data: Linearity

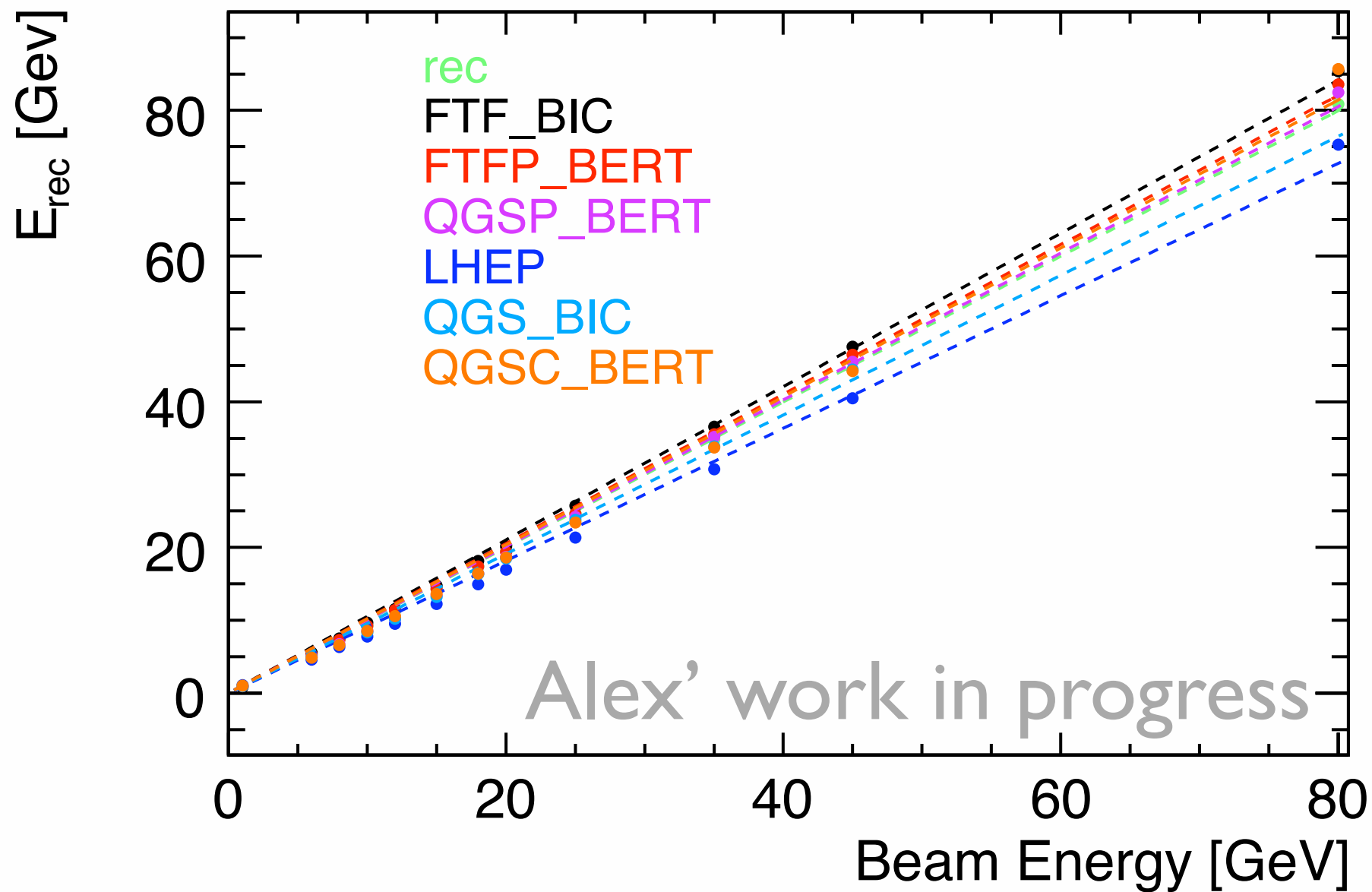


$I_{\text{Mip}} = 28.7 \text{ MeV}$

Data: Residuals



MC: Energy Scale



$I_{\text{mip}} = 28.7 \text{ MeV}$

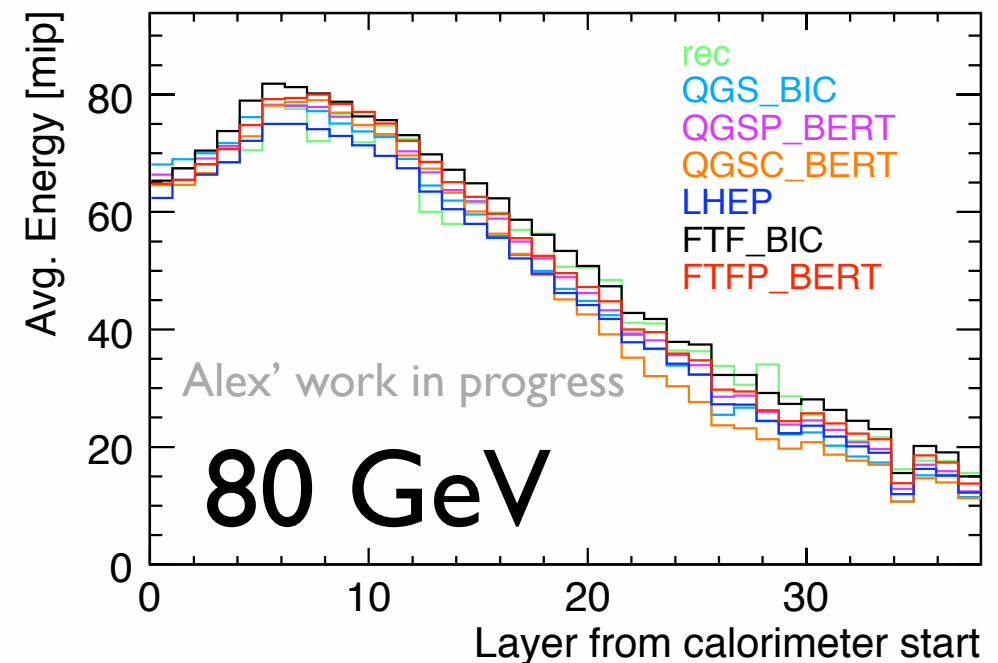
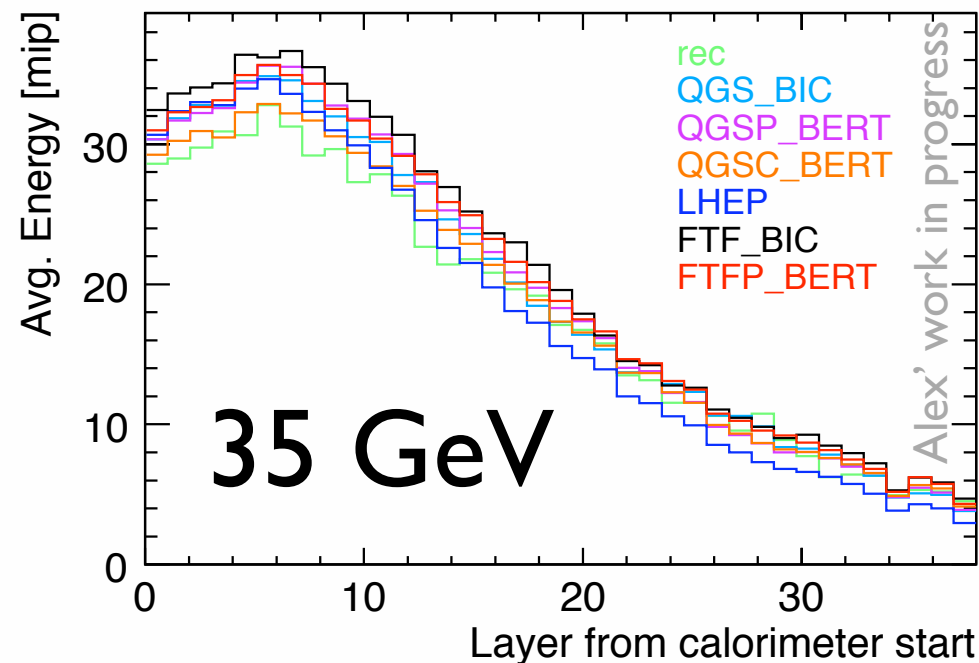
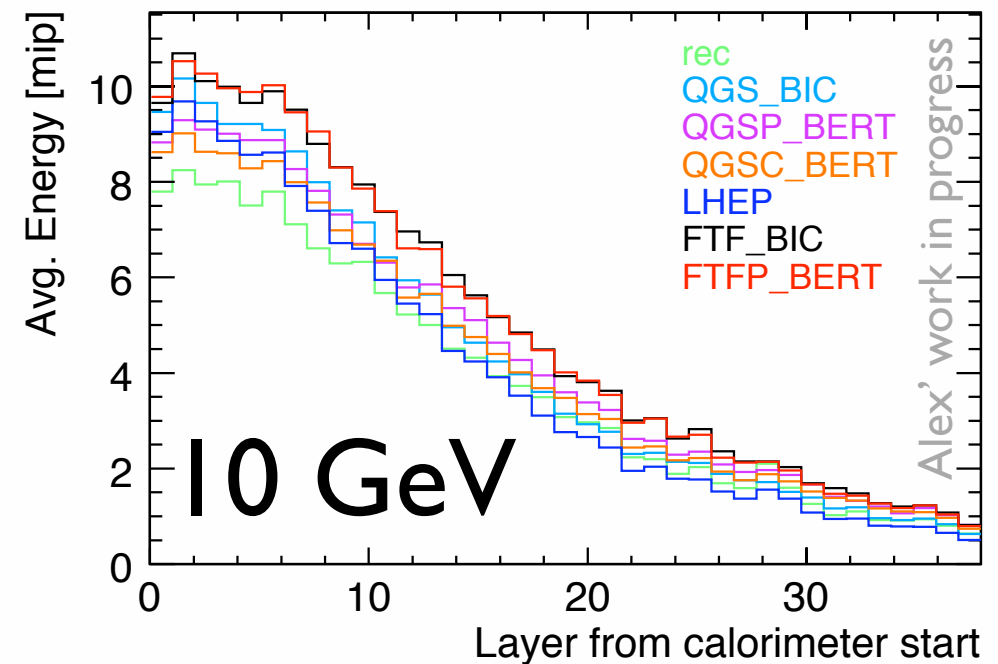
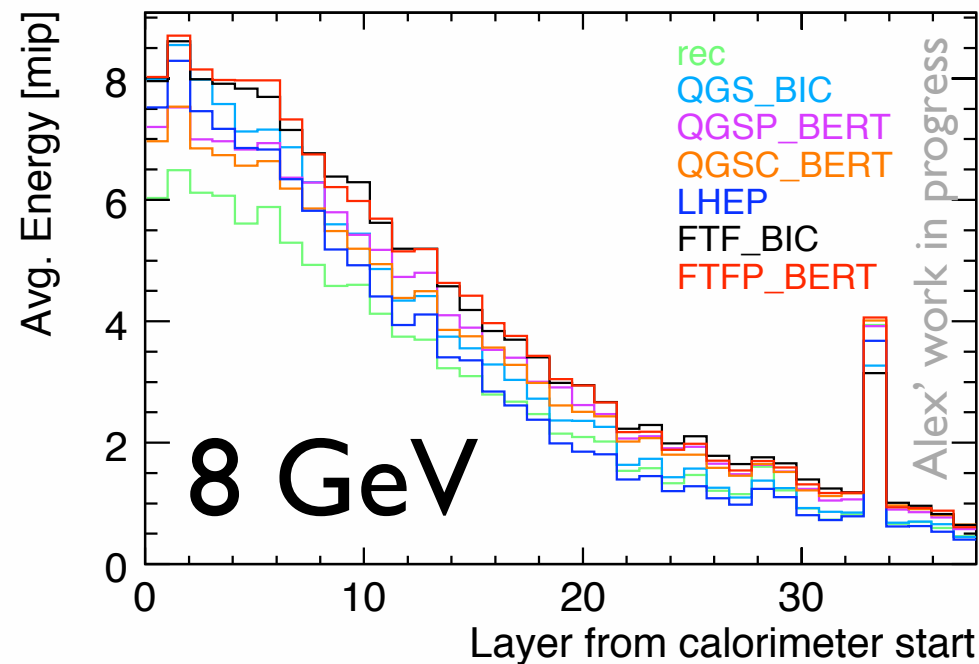
MC: Energy Scale

Fit Parameters:

Alex' work in progress

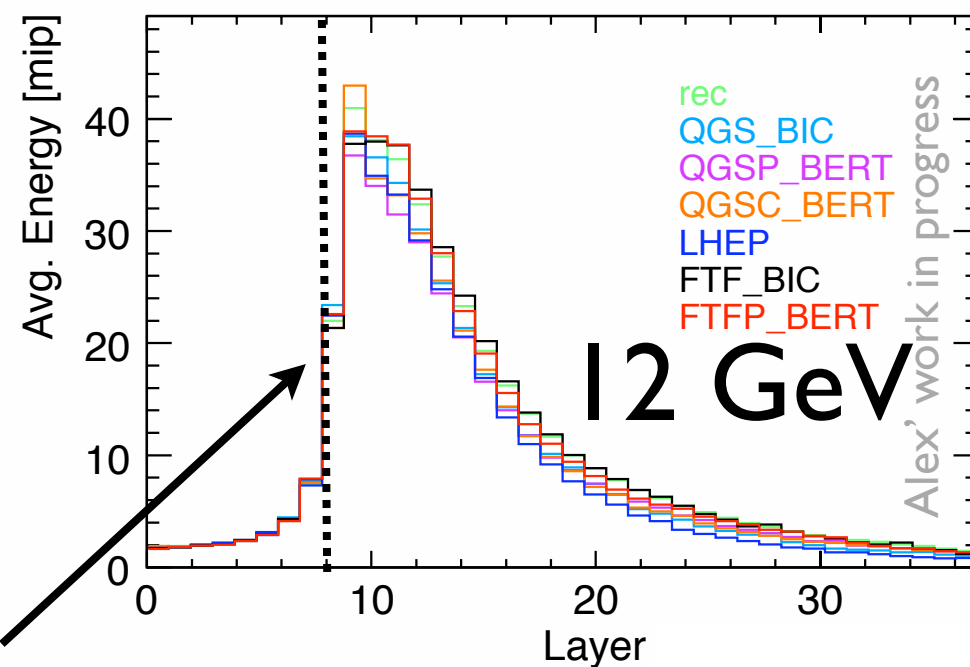
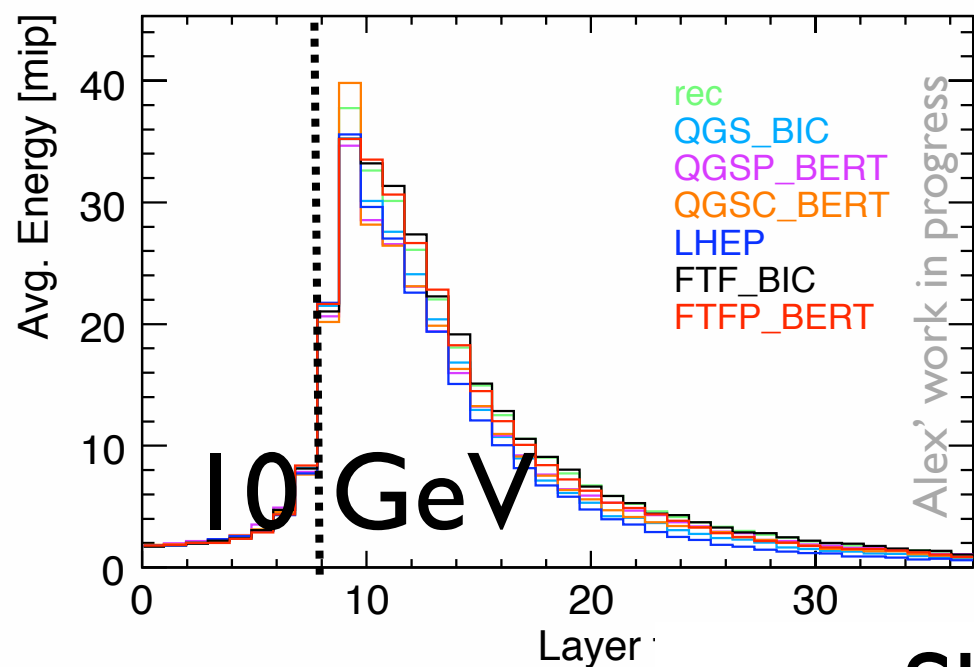
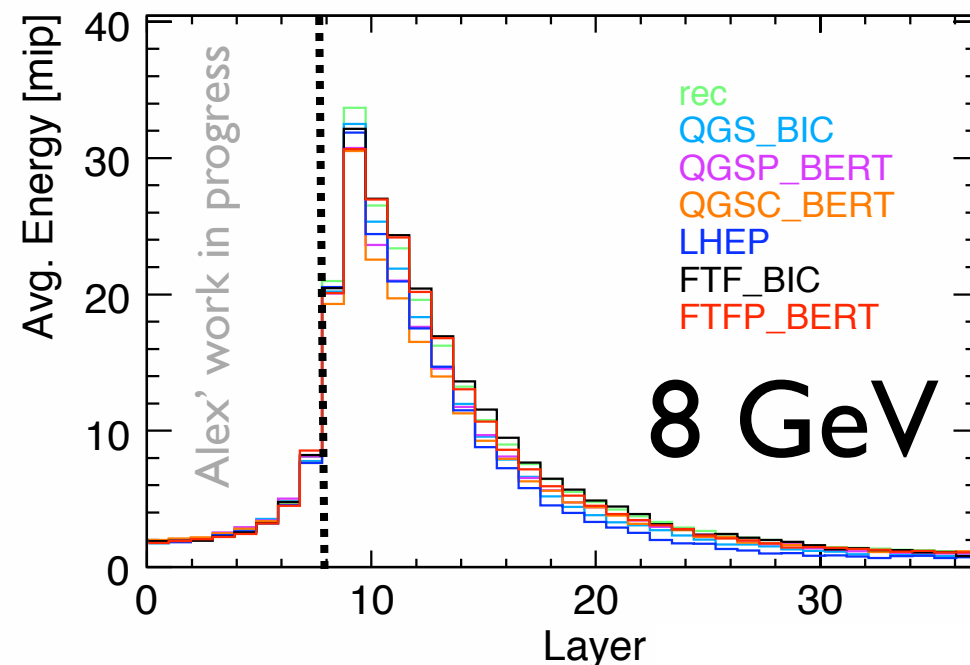
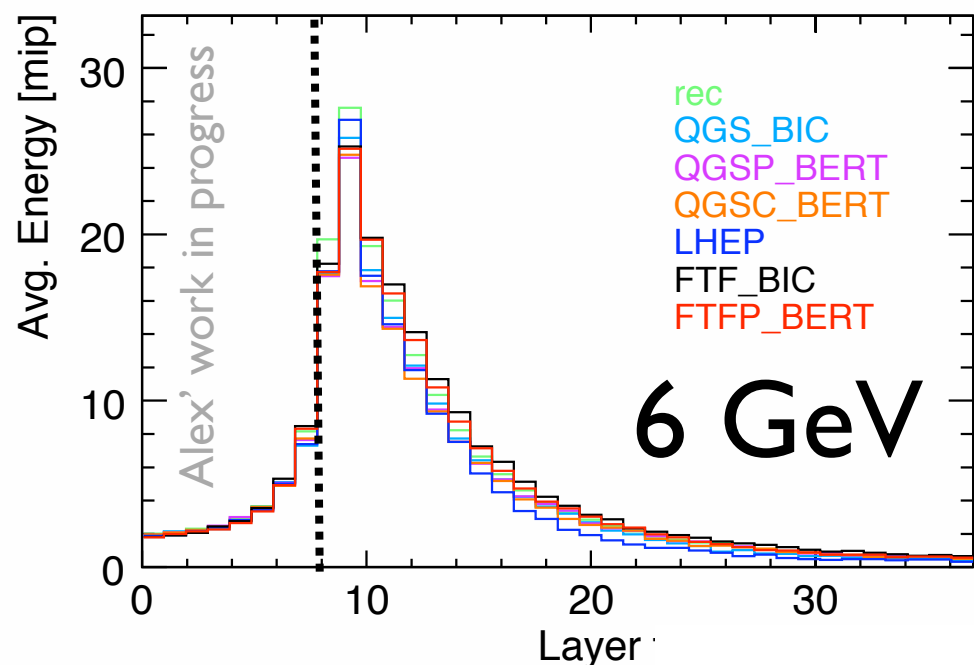
	Slope
FTF_BIC	1.05 ± 0.01
FTFP_BERT	1.03 ± 0.01
QGSP_BERT	1.01 ± 0.02
LHEP	0.91 ± 0.02
QGS_BIC	0.96 ± 0.02
QGSC_BERT	1.02 ± 0.02
Data	1

MC: Longitudinal Profiles



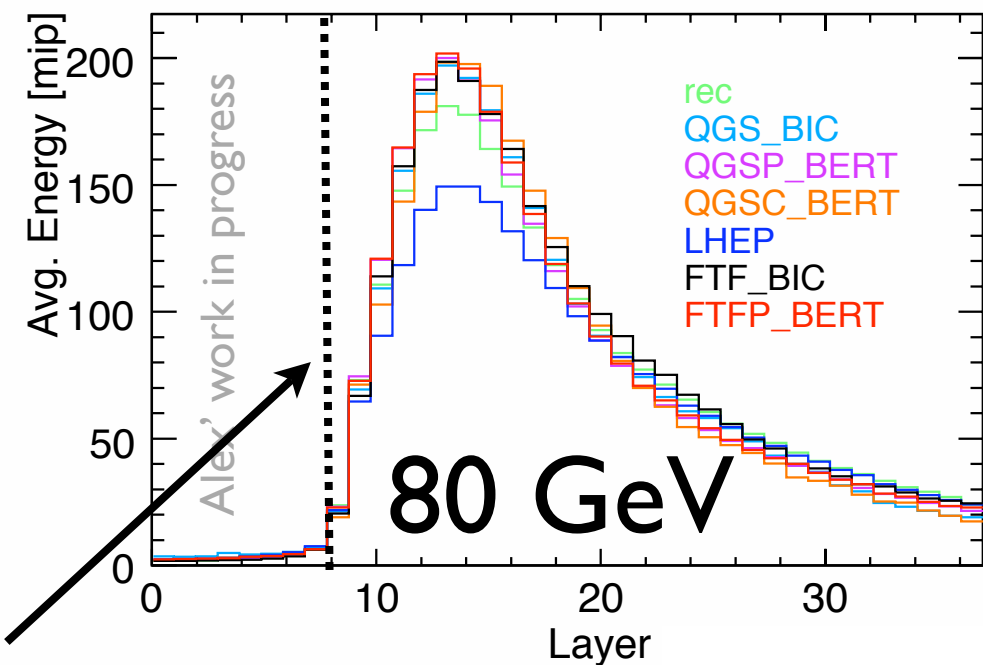
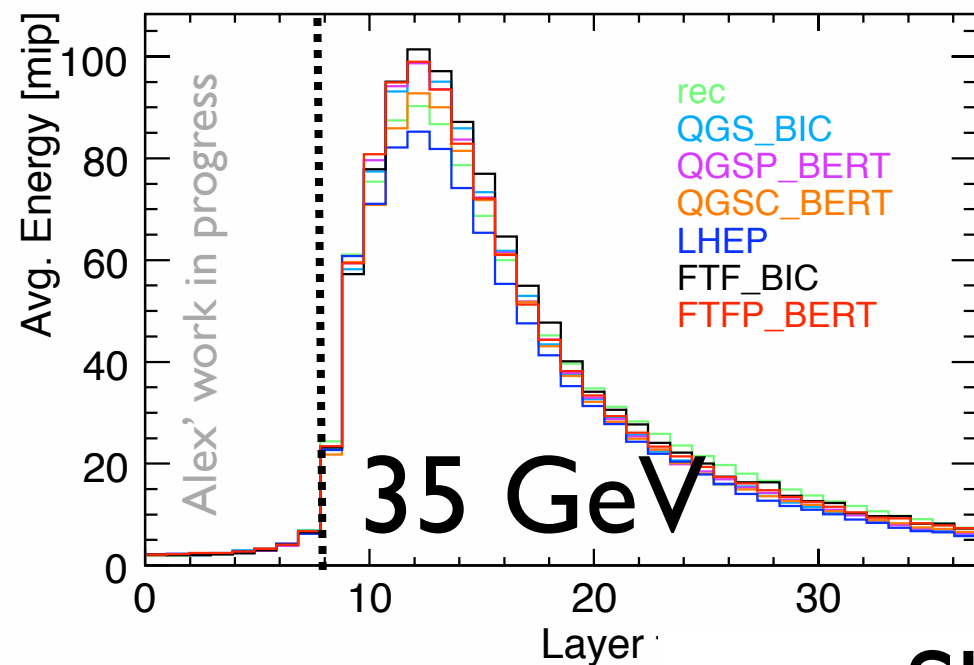
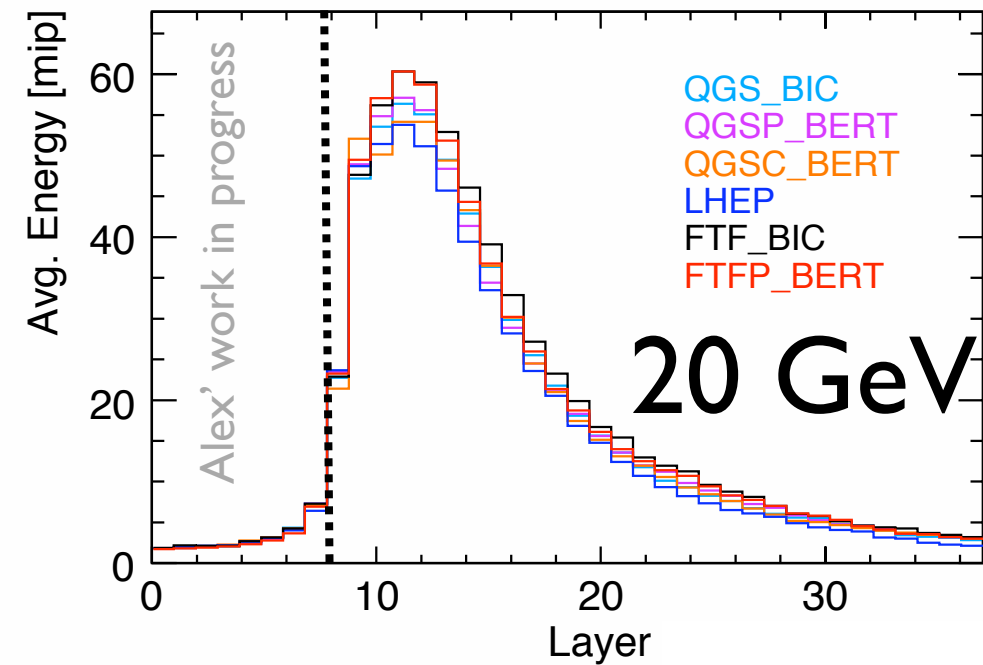
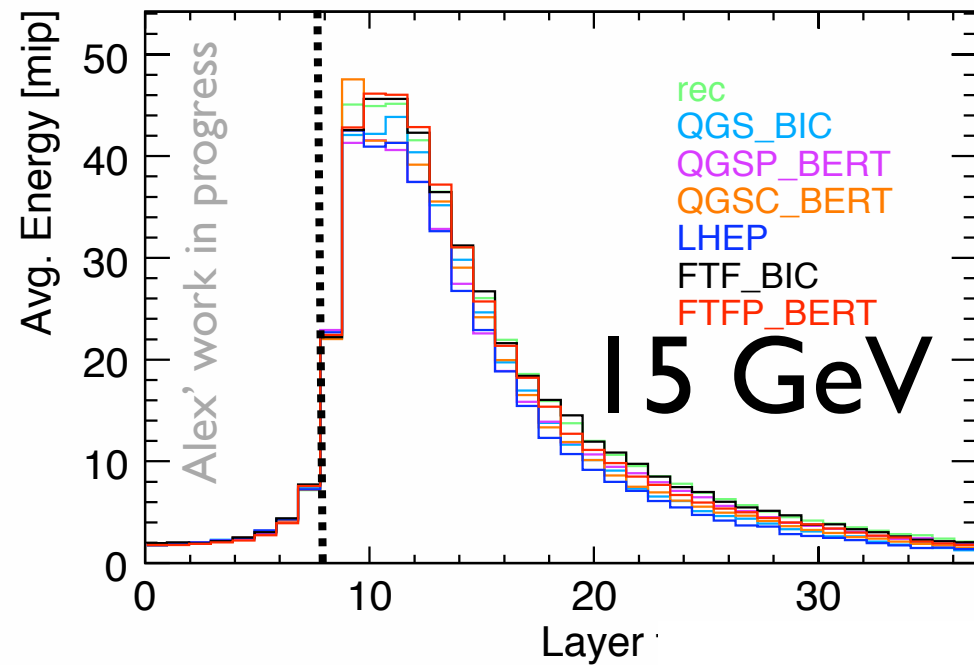
(layers from calorimeter start)

MC: Longitudinal Profiles



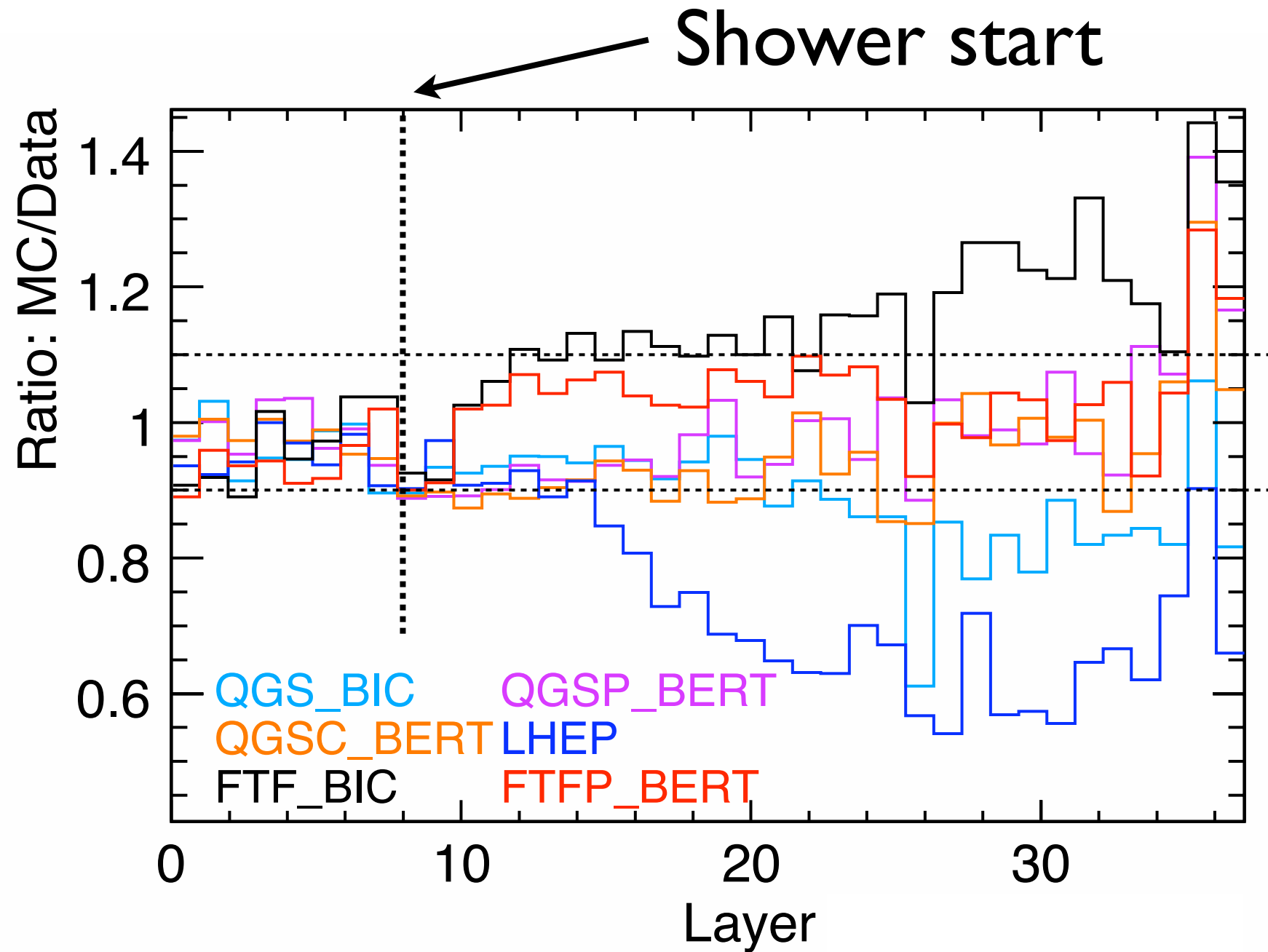
Shower start

MC: Longitudinal Profiles

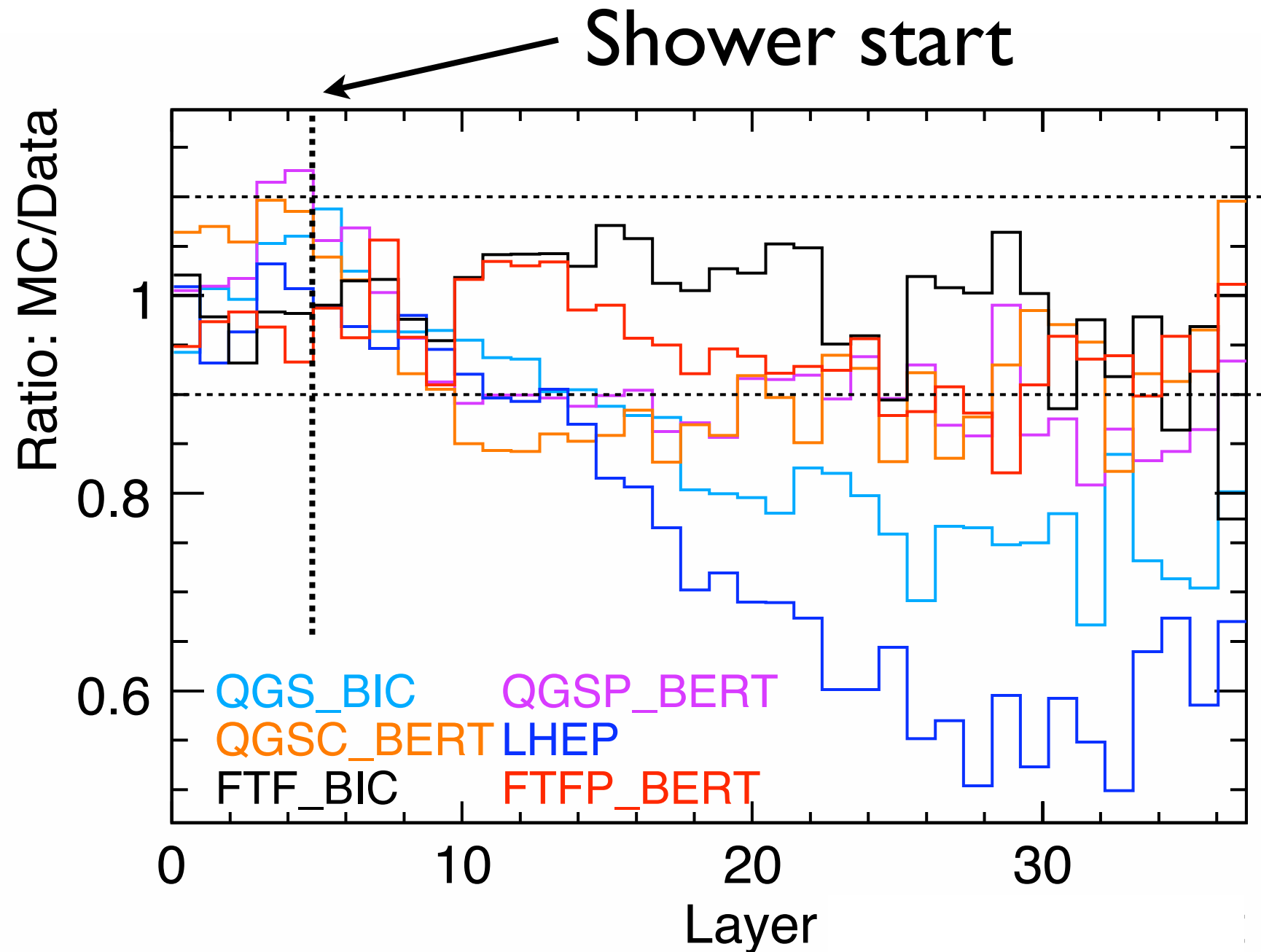


Shower start

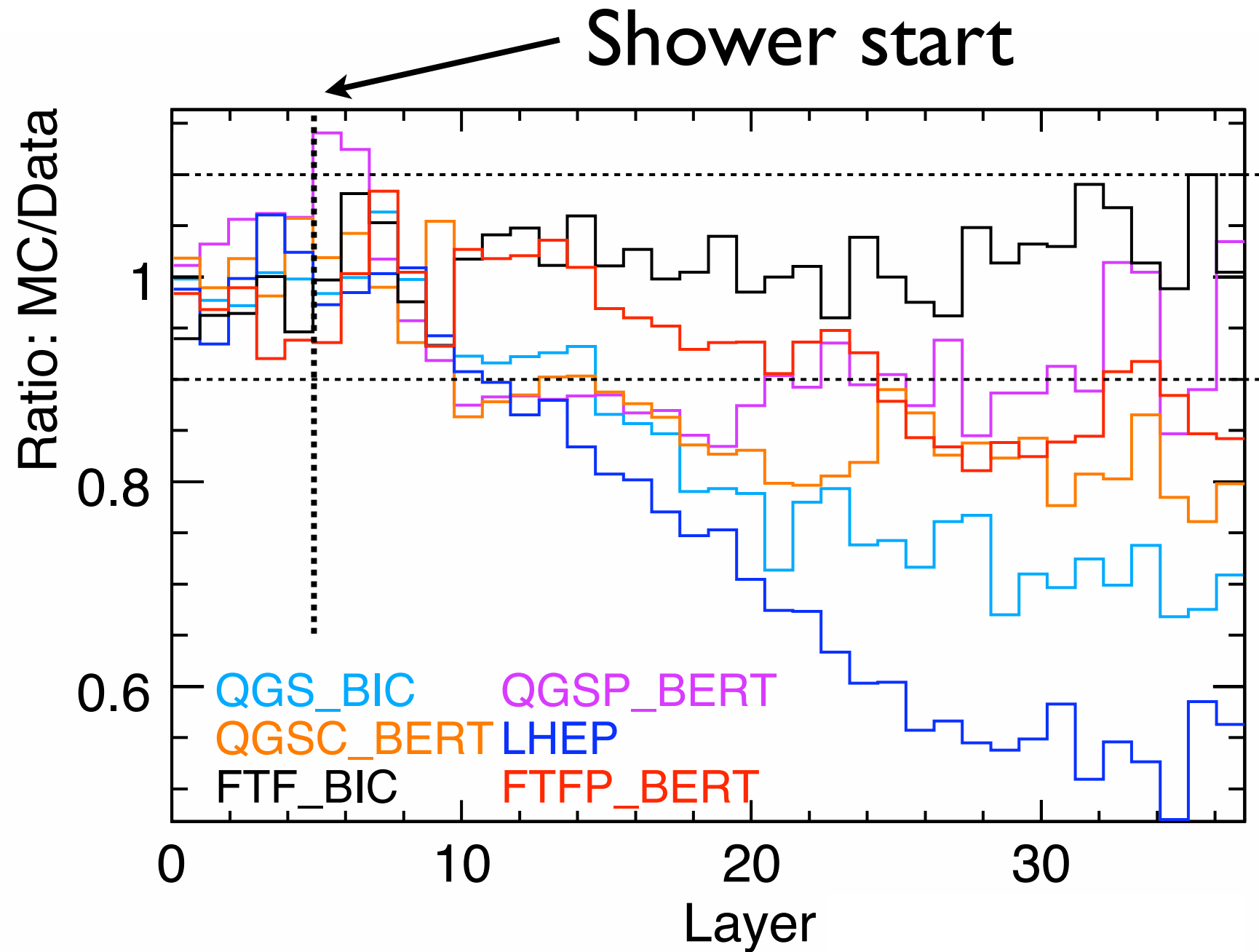
Longitudinal Profiles 6 GeV



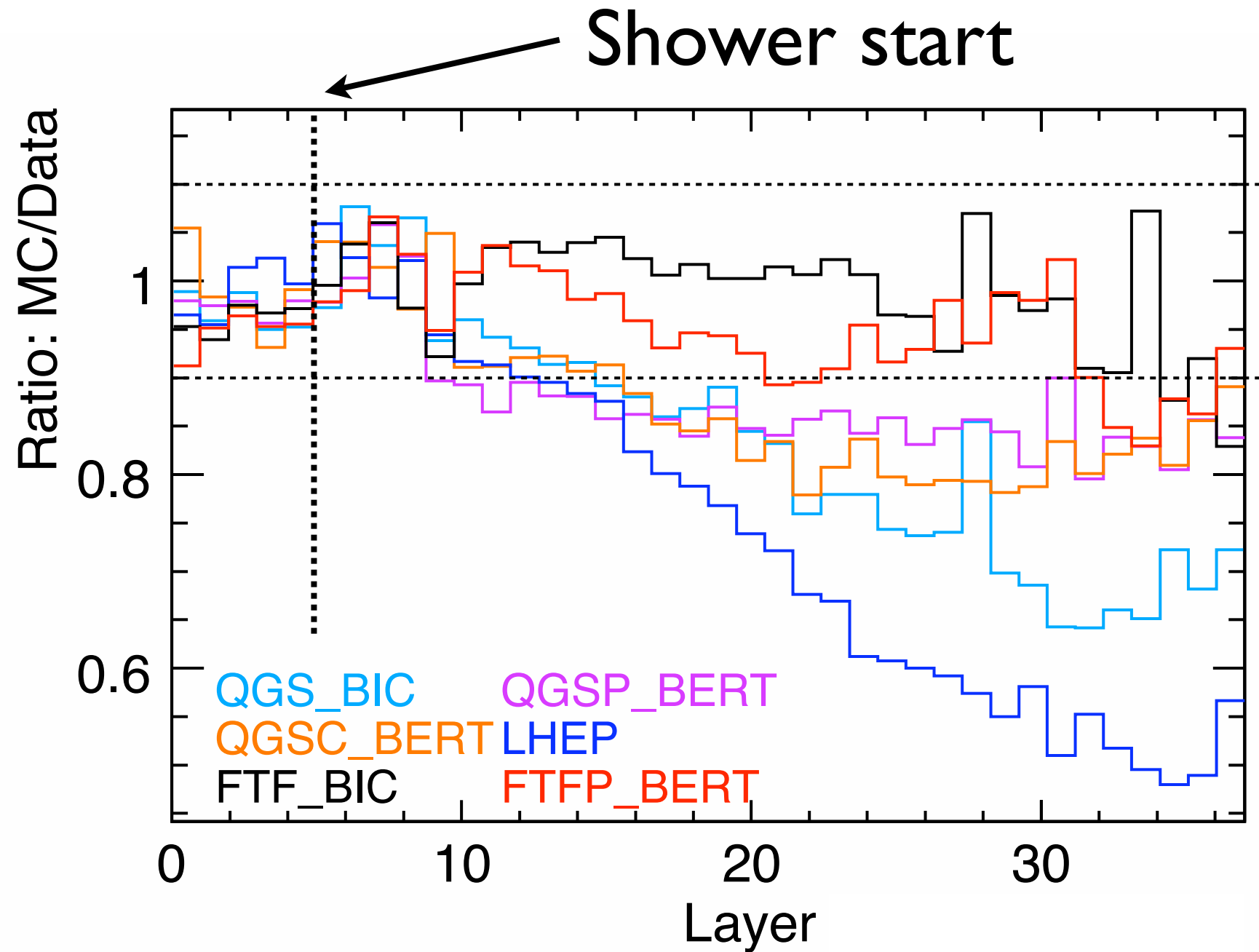
Longitudinal Profiles 8 GeV



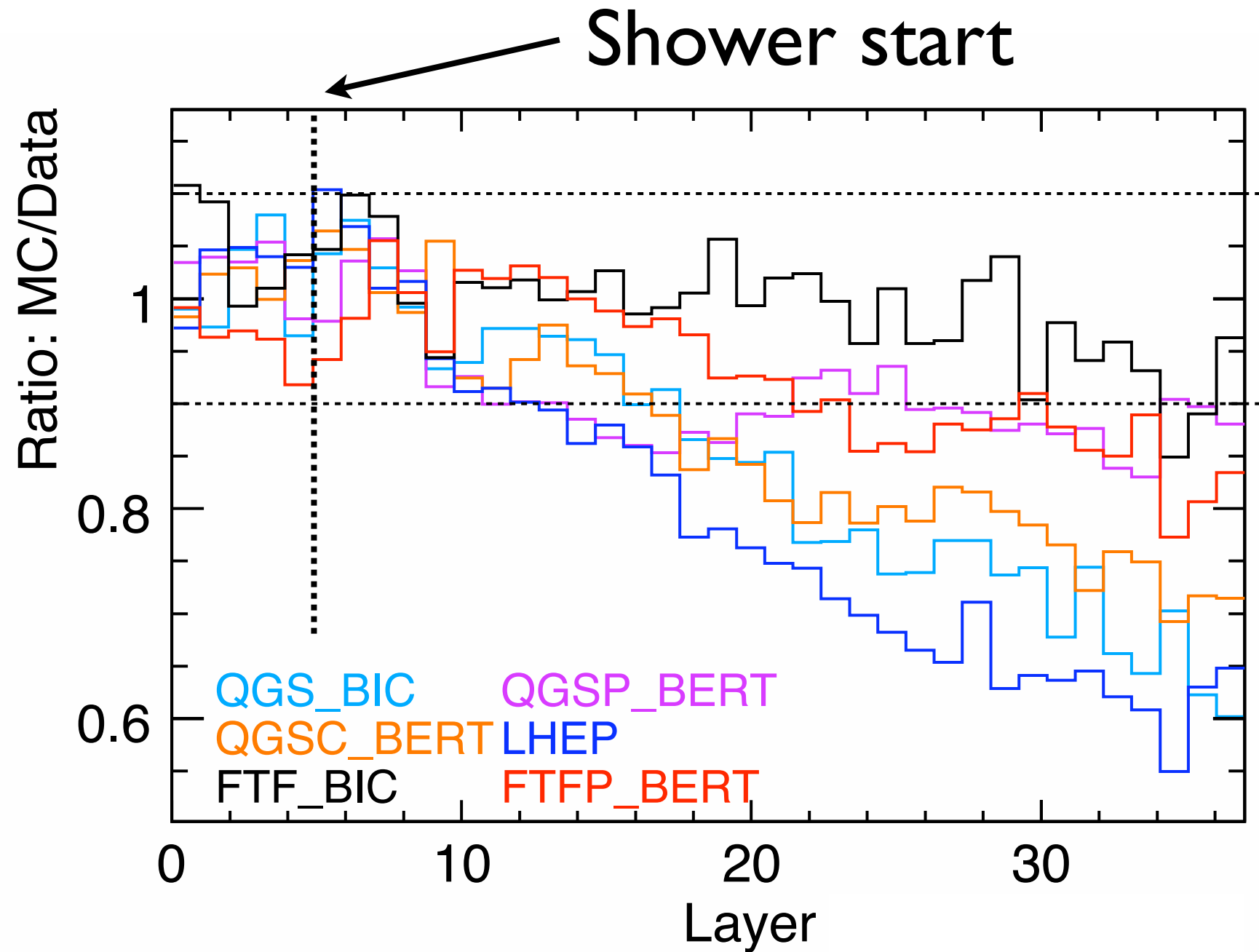
Longitudinal Profiles 10 GeV



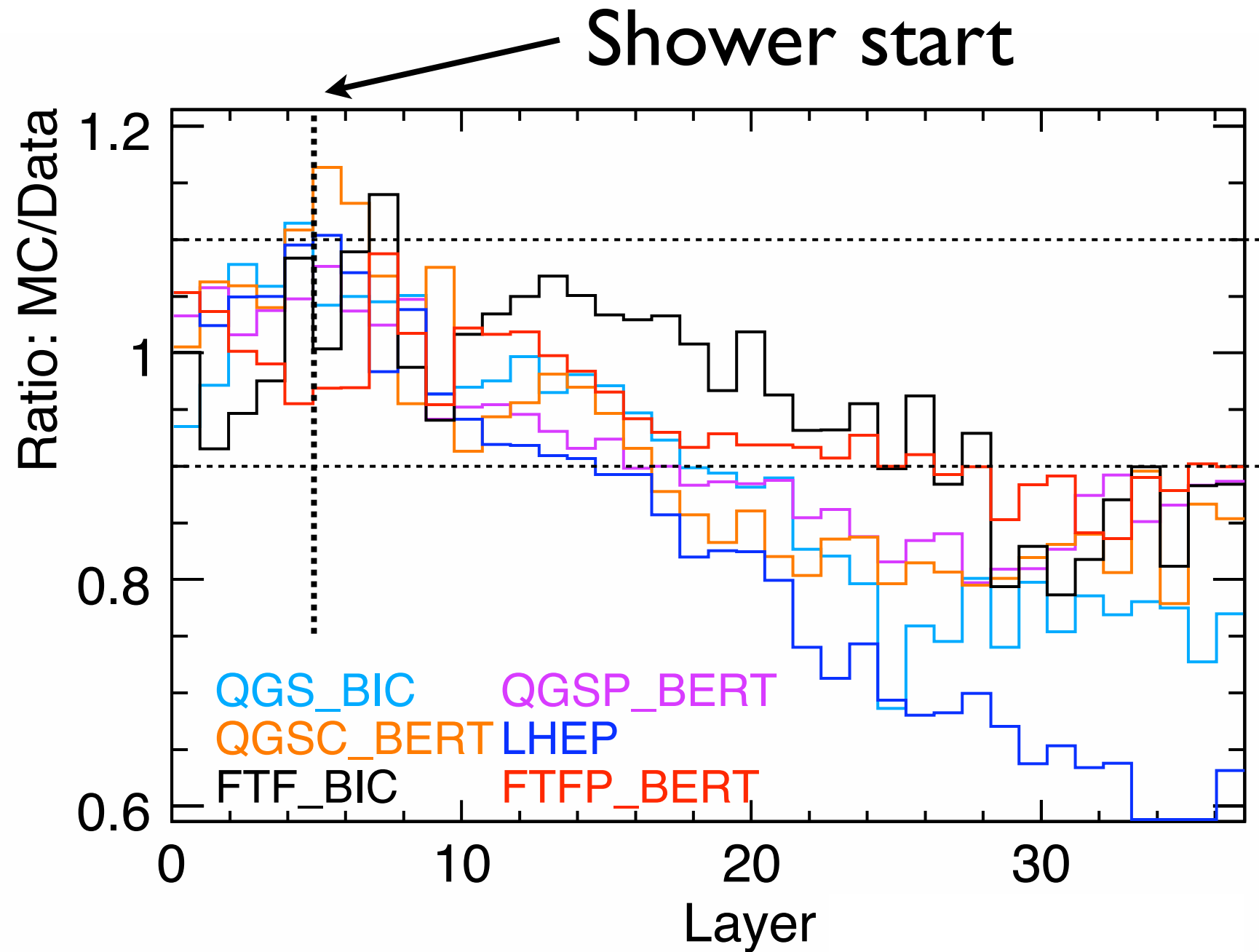
Longitudinal Profiles 12 GeV



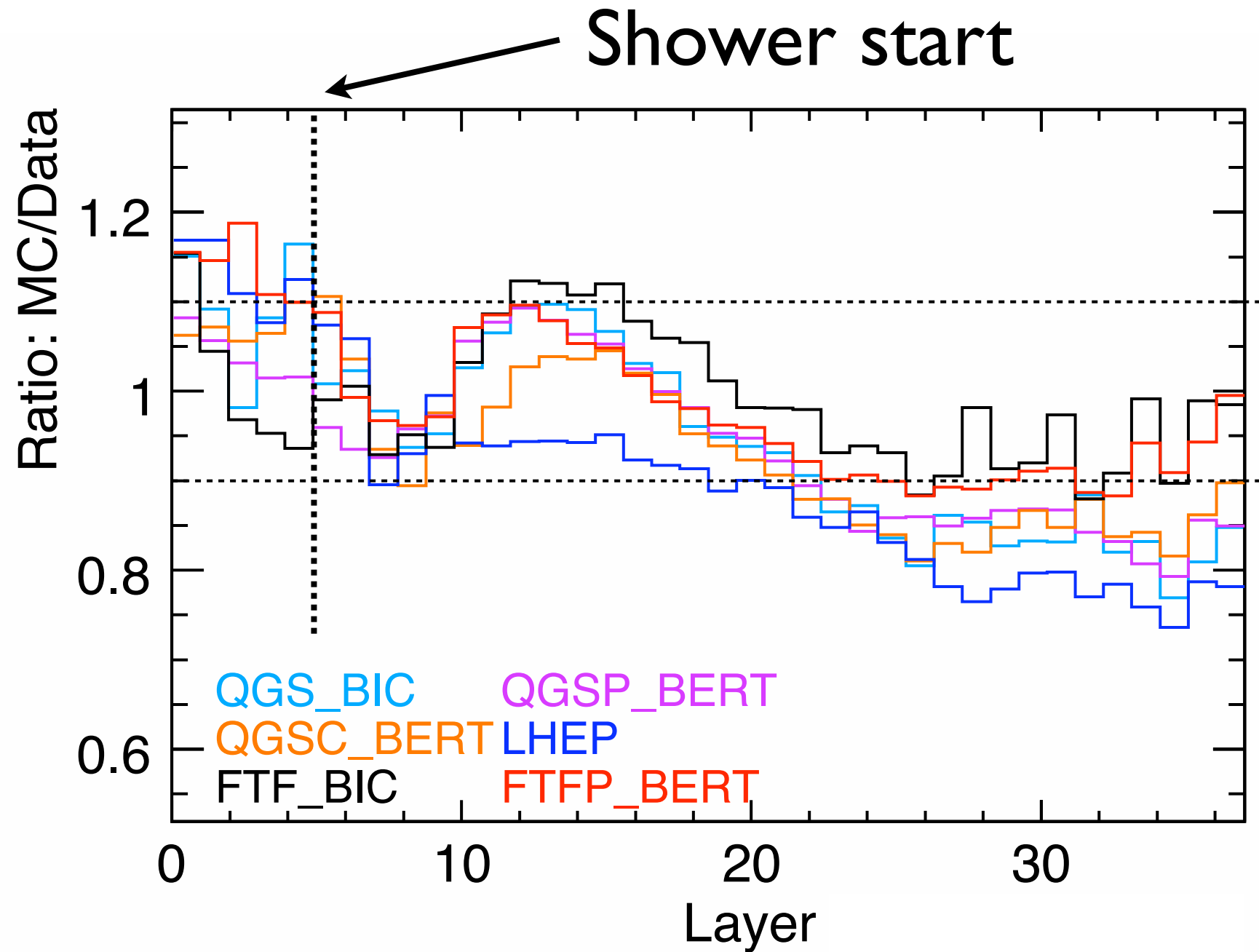
Longitudinal Profiles 15 GeV



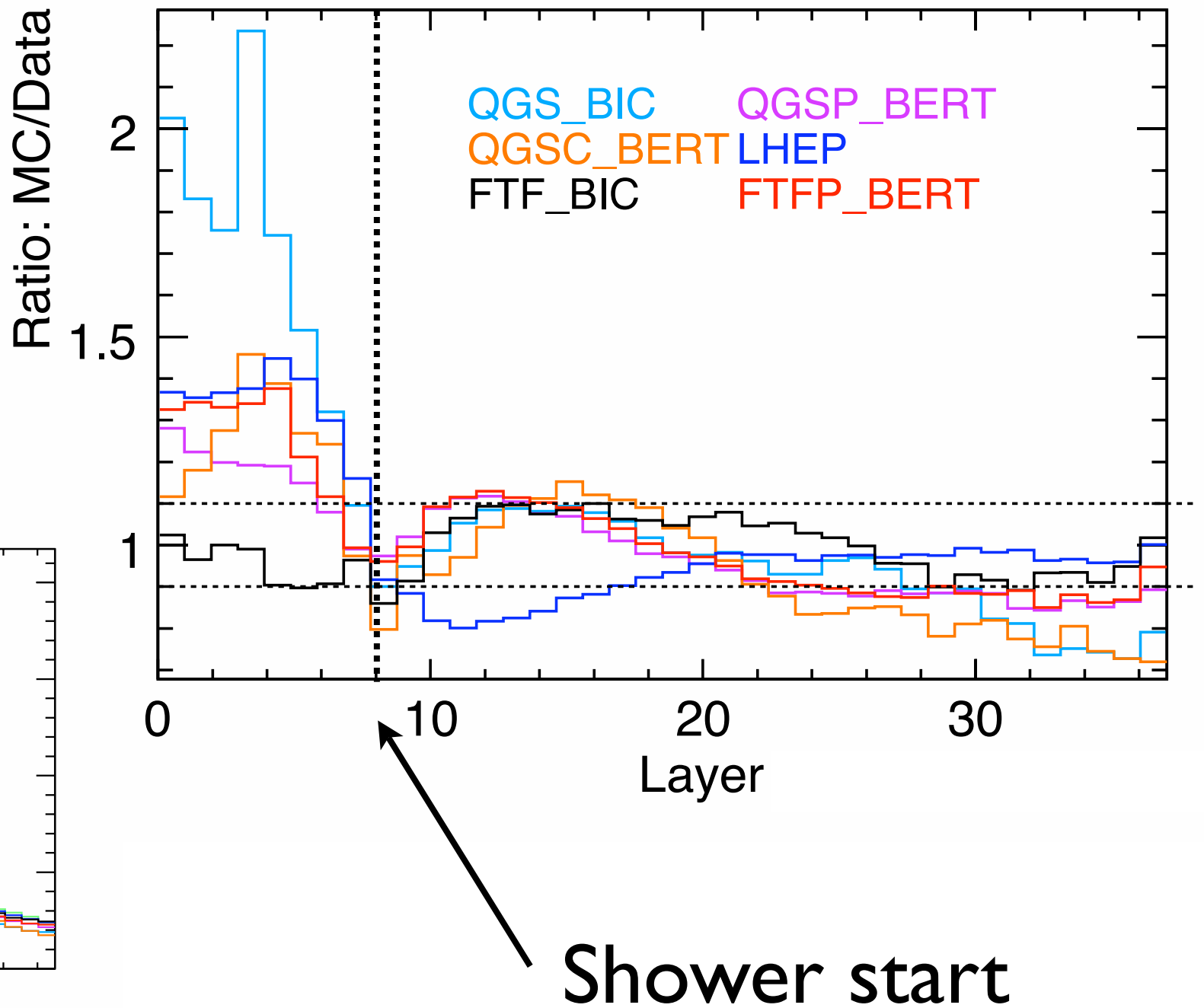
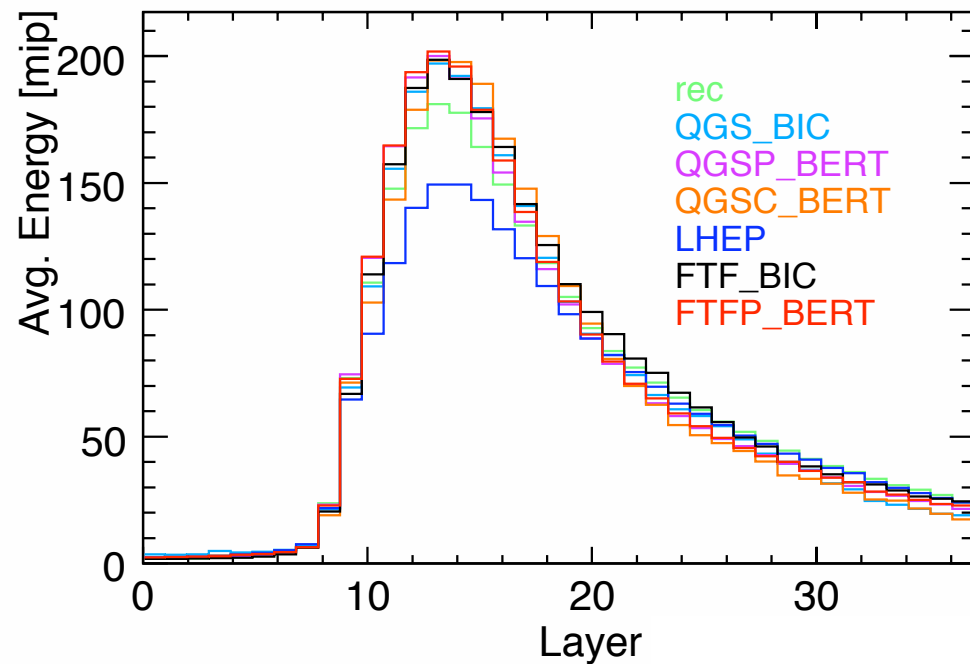
Longitudinal Profiles 18 GeV



Longitudinal Profiles 35 GeV



Longitudinal Profiles 80 GeV



Summary

- Started analysis of pion runs from CERN 2007
- Included temperature correction
- Comparison with various Monte Carlo Models
- Longitudinal Profiles using Marina's
Primary Track Finder Processor (no tuning)
- All very preliminary (first look)

BACKUP

10 GeV longitudinal profile

energySSProfileHist2

