

Testing Mokka Model LDC01_06Sc_test with FullLDCTracking

A. Raspereza, S. Aplin

Outline

- GEAR steerings for the new SIT & FTD drivers
- Tests with single muons

GEAR Steerings for new SIT & FTD

- SIT section includes now parameter “SITModel”
 - SITModel =0 : no support structure (old Mokka models)
 - SITModel =1 : support structure is present (Mokka models including new SIT drivers)
- Geometrical parameters for SIT support structures
 - SITSupportLayerThickness : (Double) ,
 - SITLayerHalfLength : (DoubleVec) ,
 - SITSupportLayerRadius : (DoubleVec) ,
 - SITSupportLayer_RadLen : (Double) ,
 - SITSupportLayer_dEdx : (Double) ,
- No more weird heavy-weight Silicon ($\rho=8.33 \text{ g/cm}^3$)
⇒ “LastHeavyLayer” parameter in FTD section is set to 0 for the new FTD drivers (first three FTD discs in old drivers are made of heavy-weight Si)
- Proper changes are propagated to Mokka drivers (filling of GEAR steering)

Test with Single Muons

- Mixed sample of μ^+ and μ^-
- $P = 0.5, 2, 5, 20, 50 \text{ GeV}/c$
- Two polar angles
 - $80 \pm 5^\circ$ (VTX+SIT+TPC)
 - $10 \pm 2^\circ$ (FTD)
- Uniform smearing in ϕ
- Following proposal by Gabriel Musat Mokka has been run with following flags

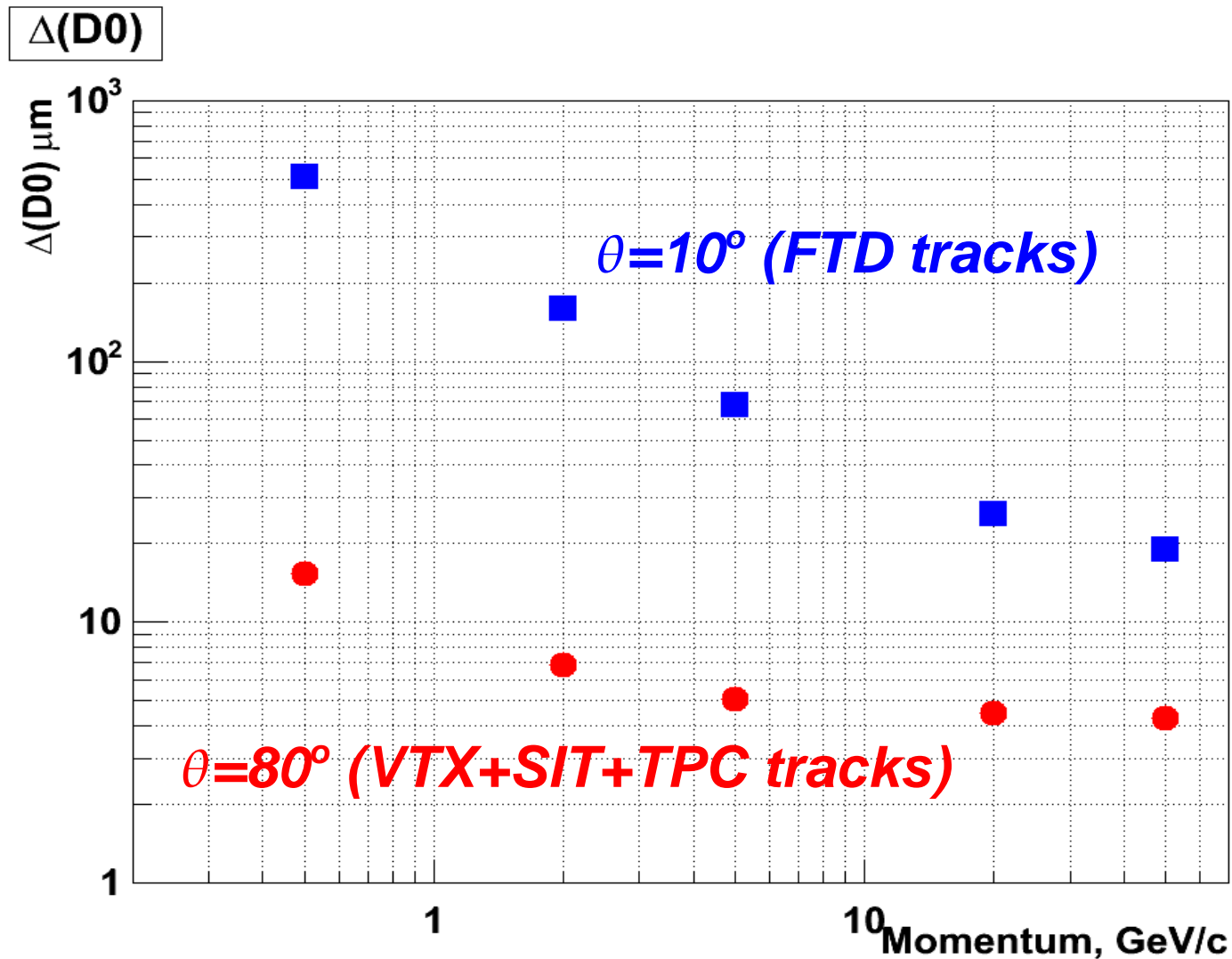
```
/Mokka/init/EditGeometry/rmSubDetector SSit02  
/Mokka/init/EditGeometry/rmSubDetector SFtd04  
/Mokka/init/EditGeometry/rmSubDetector SEtd01
```

```
/Mokka/init/EditGeometry/addSubDetector sit02 30  
/Mokka/init/EditGeometry/addSubDetector SFtd03 40  
/Mokka/init/EditGeometry/addSubDetector etd00 250
```

Observations

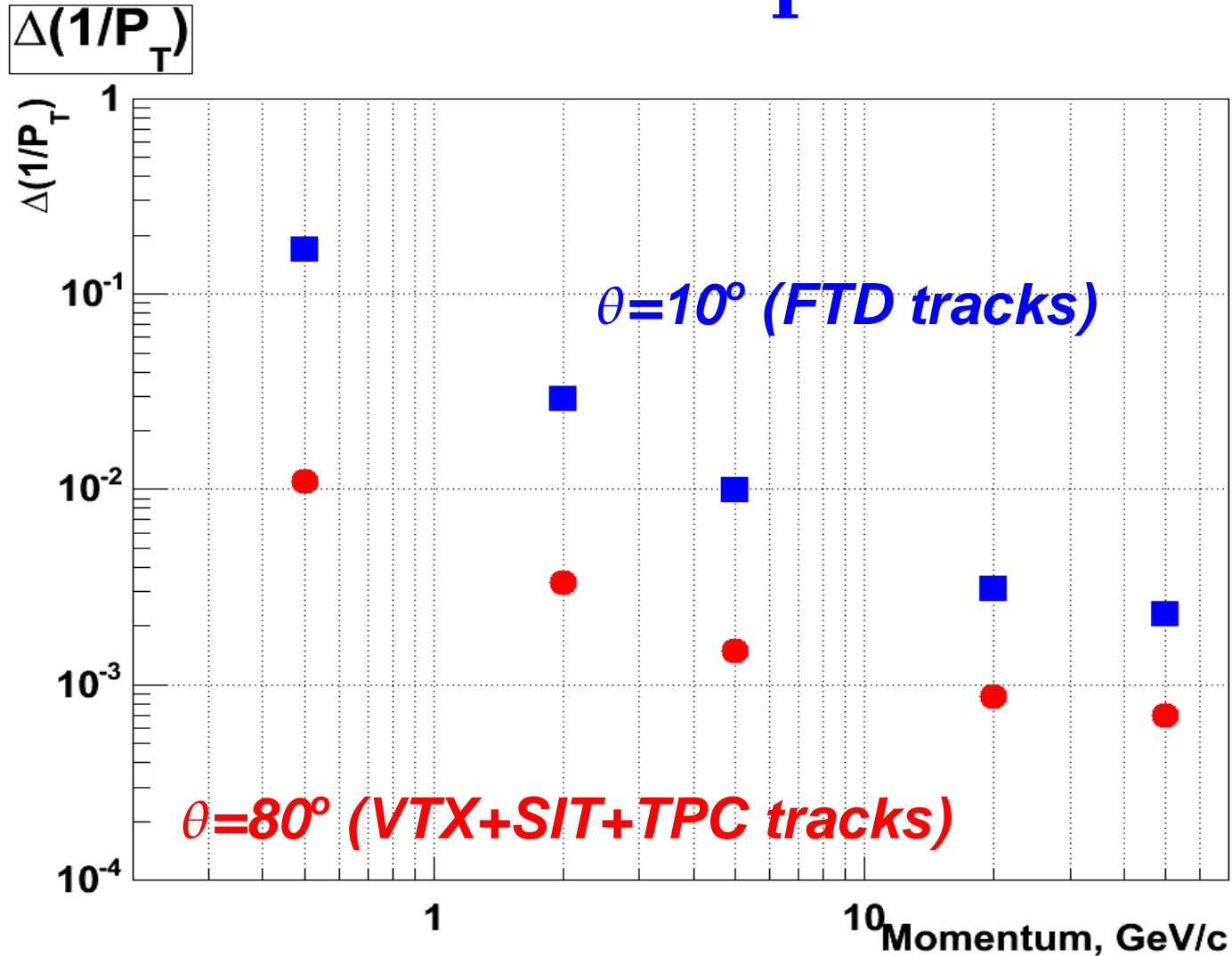
- Test is done with two versions of MarlinReco
- Steve's version :
 - half of TPC hits are missing in the reconstructed tracks
 - Low efficiency of finding tracks in the forward region
- Alexei's version :
 - at first glance seems to be happy with the new Mokka models
 - no problems reported by Steve are observed
- Differences in two MarlinReco versions are being scrutinized

Close Look. D_0 Resolution



D_0 looks OK! Comparable to LDC01Sc model

Closer Look. P_T Resolution



Too poor resolution at high P for central region
 $\Delta(1/p_T) = 5 \cdot 10^{-4}$ instead of $5 \cdot 10^{-5}$ (LDC01Sc)
under investigation