

Updates of LDC Tracking Package

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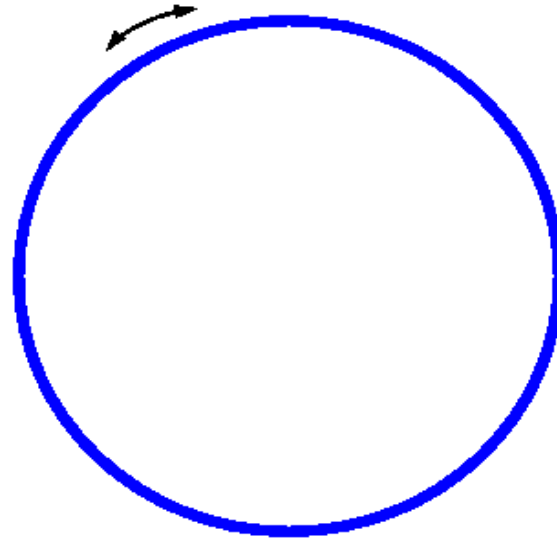
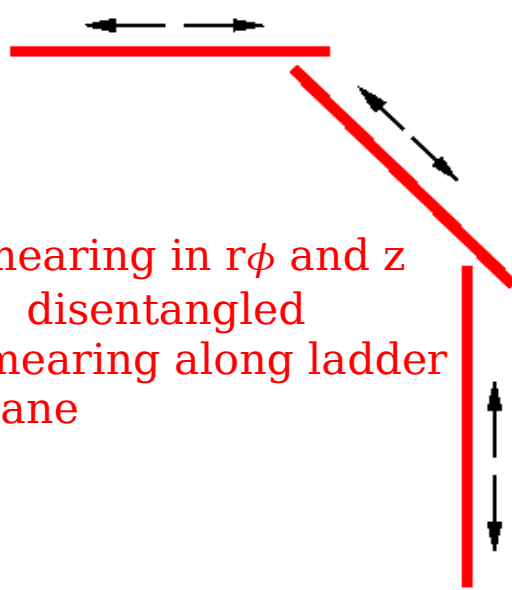
ILD Phone Meeting 27/02/1008

- Modifications of TPCDigiProcessor : treatment of hit patterns with equidistant distance between hits (Steve Aplin)
- Modifications of VTXDigiProcessor : smearing of hits along ladder planes (Clare Lynch)
- Implementation of new SIT (Sit01, Sit02) Mokka drivers : substitution of heavy-weight Si (Si_8.22) by support+sensitive layer structure (Hengne Li, Valery Saveliev)
- Changes to MaterialDB processor to account for changes in SIT and FTD drivers (AR)
- Implementation of correct GEAR steerings for the new SIT driver (Andreas Moll, AR)

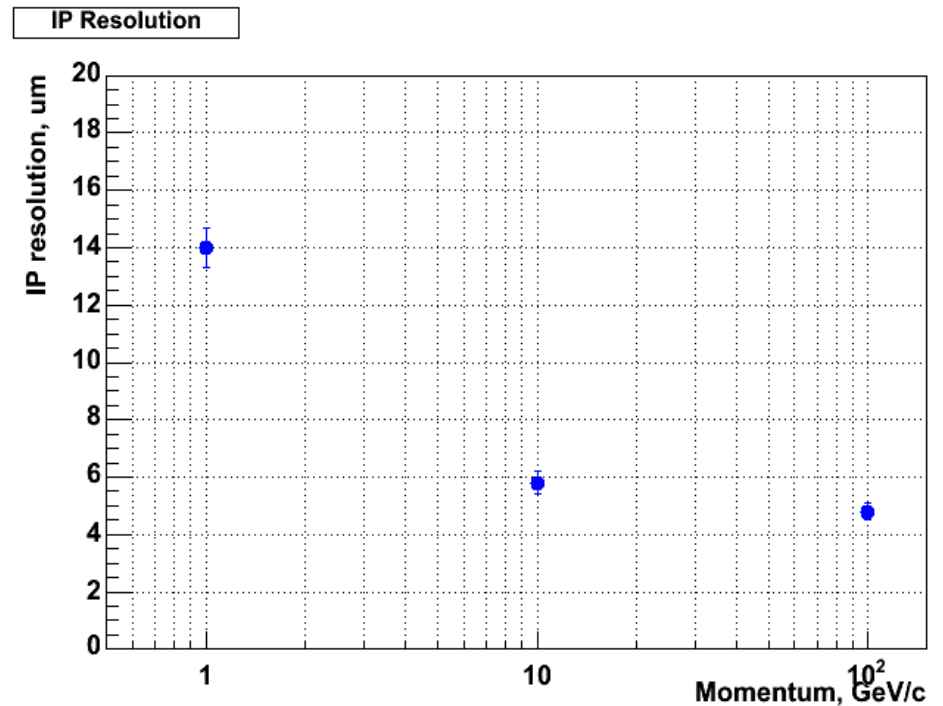
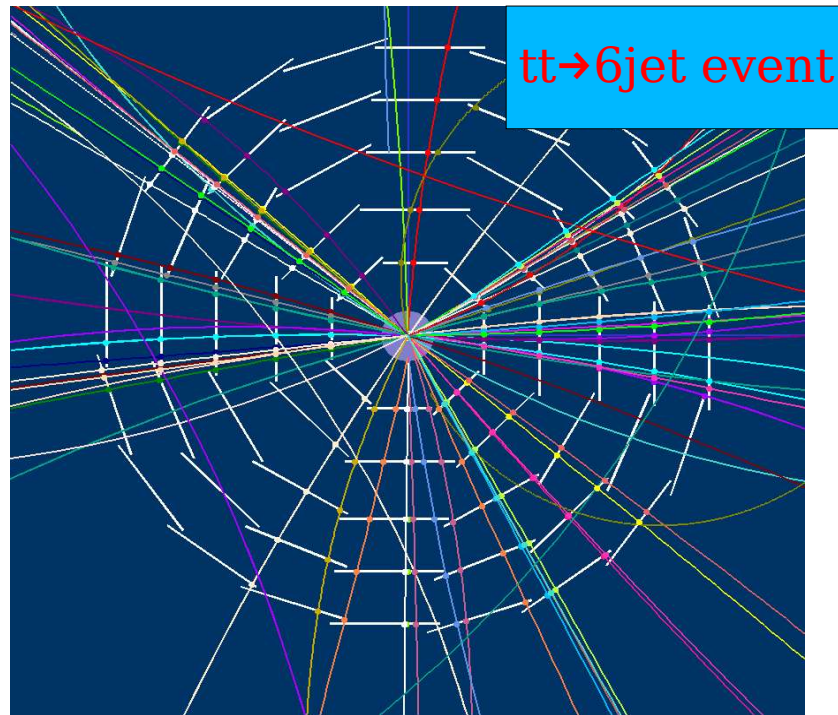
Hit Smearing in Laddered VXD (VXD01 Mokka Driver)

Clare Lynch

- Smearing in $r\phi$ and z disentangled
- Smearing along ladder plane

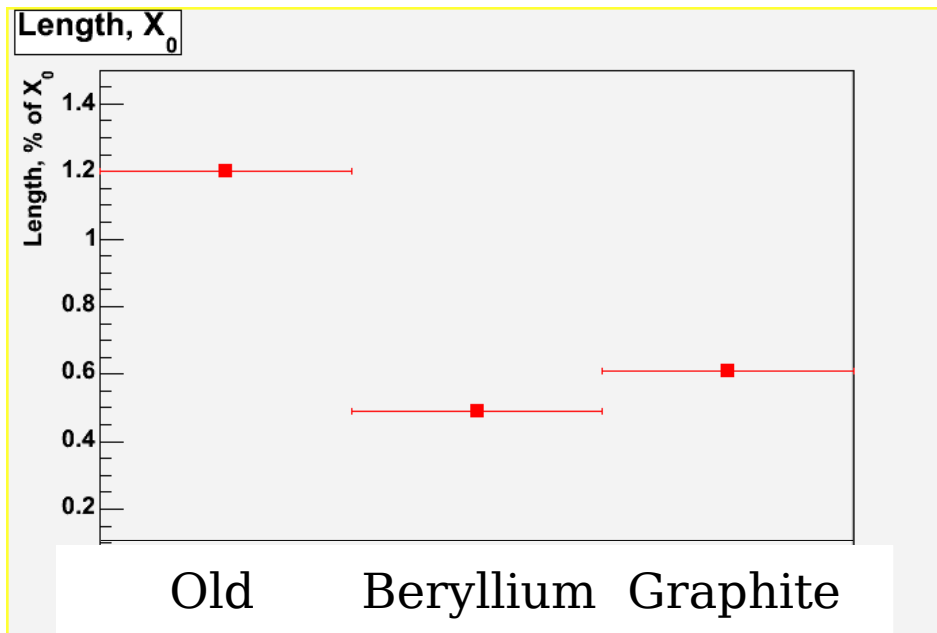


- Smearing in $r\phi$ and z disentangled
- Smearing along cylindrical surface



New SIT Drivers

- Sit00 (Old version)
 - Heavy-weight Si ($\rho=8.72 \text{ g/cm}^3$), layer thickness=0.3mm
 - Sit01 (implementation by Hengne Li)
 - Si & Beryllium support; Si thickness=0.2mm; support thickness=1 mm
 - Sit02 (implemented by Valery Saveliev)
 - Si & Graphite support; Si thickness=0.2mm; support thickness=1 mm
- ⇒ Modification of Gear steering (changes in Sit01/02 Mokka drivers)
- ⇒ Modification of MaterialDB processor



Modified Gear Steering

```
<detector name="SIT" geartype="GearParameters">  
  <parameter name="SITLayerSupportThickness" type="double" value="1.01" />  
  <parameter name="SITLayerThickness" type="double" value="0.2" />  
  <parameter name="SITLayer_RadLen" type="double" value="93.66" />  
  <parameter name="SITLayer_dEdx" type="double" value="3.863182419e-04" />  
  <parameter name="SITSupportLayer_RadLen" type="double" value="352.75" />  
  <parameter name="SITSupportLayer_dEdx" type="double" value="2.958134277e-04" />  
  <parameter name="SITLayerHalfLength" type="DoubleVec" value="380 660" />  
  <parameter name="SITLayerRadius" type="DoubleVec" value="160 270" />  
</detector>
```

Summary

- Changes have been implemented in Mokka drivers and LDCTracking package to account for a more realistic configuration of tracking devices
- First look revealed no major problems, code successfully runs with the new digitizers material shapes on LCIO files produced with LDC01_05Sc model
- Tracking performance studies for LDC01_05Sc and LDCPrime_01Sc are ongoing
- **NB : all changes in tracker Mokka drivers or tracker digitizers should be communicated to MPI group ⇒ coherent propagation of changes to the LDCTracking package**