DCH reso. function in FastSim

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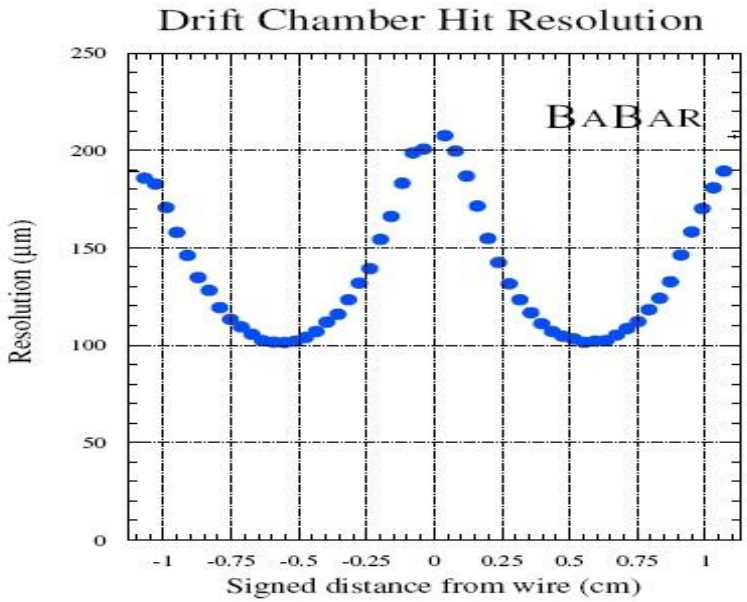
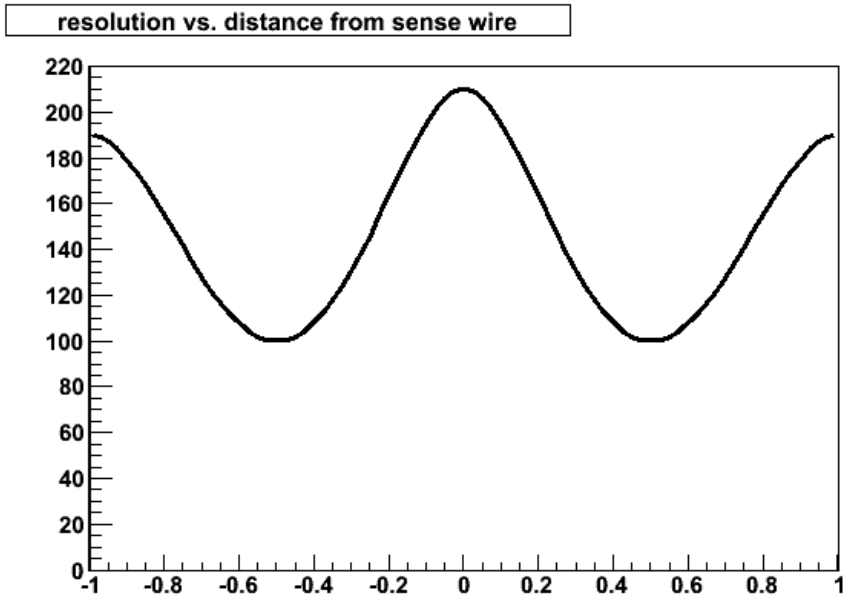
Resolution function of DCH hits

- So far the spatial resolution function of DCH hits in FastSim was constant (Gaussian with constant width)
- In real world the resolution is a function of the distance of the track from the sense wire



Resolution function of DCH hits

- Starting on revision #770 the DCH resolution is modeled with a 5^{th}-order polynomial



Note: we may choose a better function in the future

xml file configuration

Old configuration:
PacDetector/Dch_resolution.xml

```
  <measures>

<device name="Axial"
      type="DriftChamber"
       rms="0.0125"
            eff="0.99"
          angle="0.0" />

<device name="Stereo+"
      type="DriftChamber"
       rms="0.0125"
            eff="0.99"
          angle="0.06" />

<device name="Stereo-"
      type="DriftChamber"
       rms="0.0125"
            eff="0.99"
          angle="-0.06" />

</measures>
```

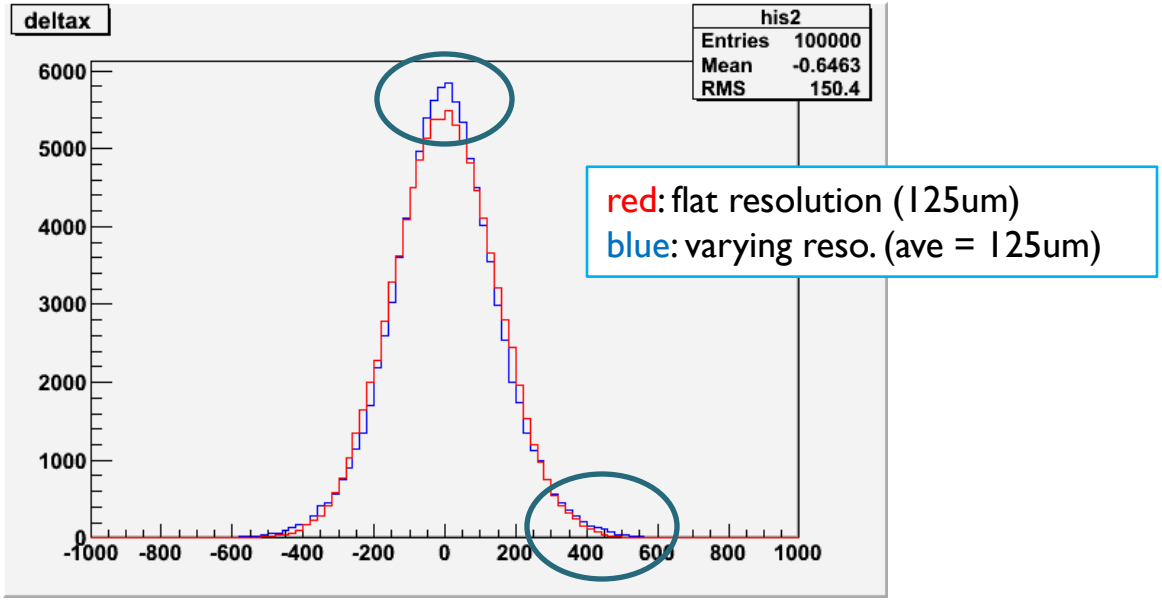
New configuration:
PacTrk/Dch_BaBar.xml or
PacTrk/Dch_SuperB.xml

```
<measures>

<device name="Axial"
      type="DriftChamber"
       rms_par0="0.0178977"
       rms_par1="0"
       rms_par2="-0.161932"
       rms_par3="0.357955"
       rms_par4="-0.238636"
       rms_par5="0.0409091"
       eff="0.99"
       angle="0"  />

<device name="Stereo+"
      type="DriftChamber"
       rms_par0="0.0178977"
       rms_par1="0"
       rms_par2="-0.161932"
       rms_par3="0.357955"
       rms_par4="-0.238636"
       rms_par5="0.0409091"
       eff="0.99"
       angle="0.06"  />

<device name="Stereo-"
      type="DriftChamber"
       rms_par0="0.0178977"
       rms_par1="0"
       rms_par2="-0.161932"
       rms_par3="0.357955"
       rms_par4="-0.238636"
       rms_par5="0.0409091"
       eff="0.99"
       angle="-0.06"  />

</measures>
```

default values correspond to an average resolution of 125 μm

Comparisons

Measured hit position – True hit position



	ΔE width (Flat reso.)	ΔE width ('Realistic' reso.)
B→π+π-	25.6±0.3 MeV	24.9±0.3 MeV
B→Phi Ks	15.8±0.2 MeV	15.3 ±0.2 MeV

- the effect on measured quantities is small
- the impact on CPU time is negligible

xml DCH configuration

- The DCH configuration was described in two files
  - PacTrk/Dch_resolution.xml
    - resolution, hit efficiency, wire orientation (axial/stereo)
  - PacTrk/Dch_Tracking_Region.xml
    - geometry and material
- Now all information is in PacTrk/Dch_BaBar.xml or PacTrk/Dch_SuperB.xml:

```
<?xml version="1.0" encoding="UTF-8" ?>
<edml>
   <included>

      <measures>
            … hit reso. & wire orientation …
      </measures>

      <detector name="PacCylDetector">
         <volume name="Drift Tracking Region">
               … geometry and material …
         </volume>
      </detector>

   </included>
</edml>
```

called by the master config. file
PacDetector/pacrat_BaBar.xml
or
PacDetector/pacrat_SuperB.xml