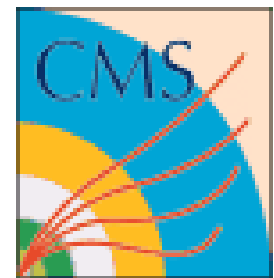


CRAFT alignment

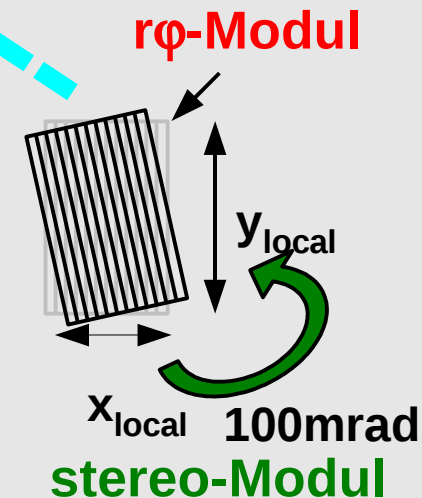
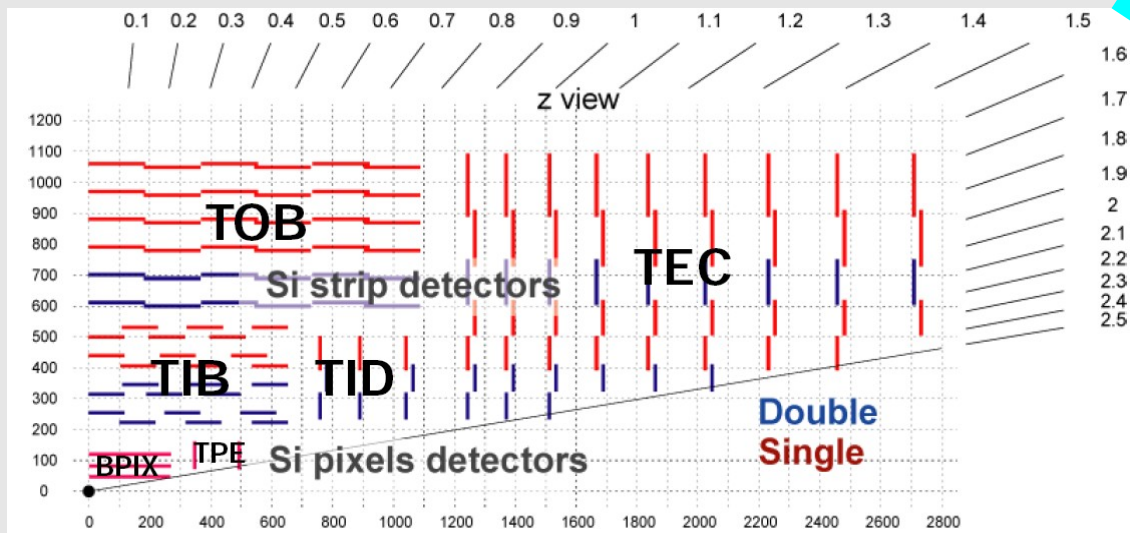
**Jula Draeger, Holger Enderle, Gero Flucke, Kolja
Kaschube
University of Hamburg**

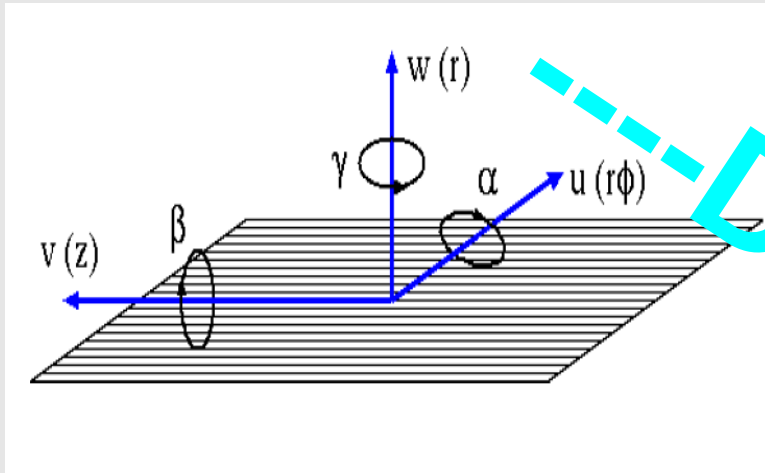


- Data (reprocessing, fixed cabling)
- MP strategy (Adun 2/3 step)
- MC Adun (is reversible, no weak modes introduced?)
- CRAFT data Adun results
- Geometry comparison (5mm TIB), SUPER MPHIP merged

- Fixed cabling maps in TPE and TEC
- Increased number of pixel hits due to correct APE assignment in Pixel
- About 3Mio tracks after standard cuts:
 - 10 hits
 - 2hits on 2d-modules
 - $p_{\min} = 5\text{GeV}$

- 2 step approach due to limited number of parameter usage
- Det units of 2d-modules are aligned separately
- First step: det unit alignment
- Second step: det alignment
- *Third step: repeat step 1 (det unit alignment)



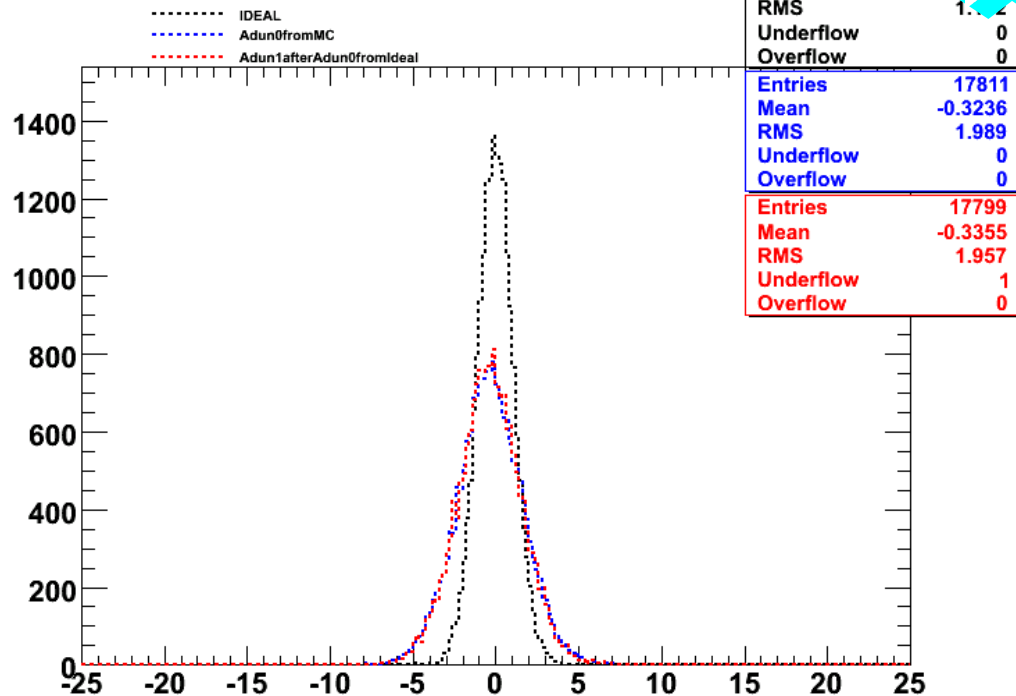


1. Aligning det units of 2-d modules separately in u, w and γ
2. Aligning dets in u, w and $\gamma + \alpha, \beta$ in TIB

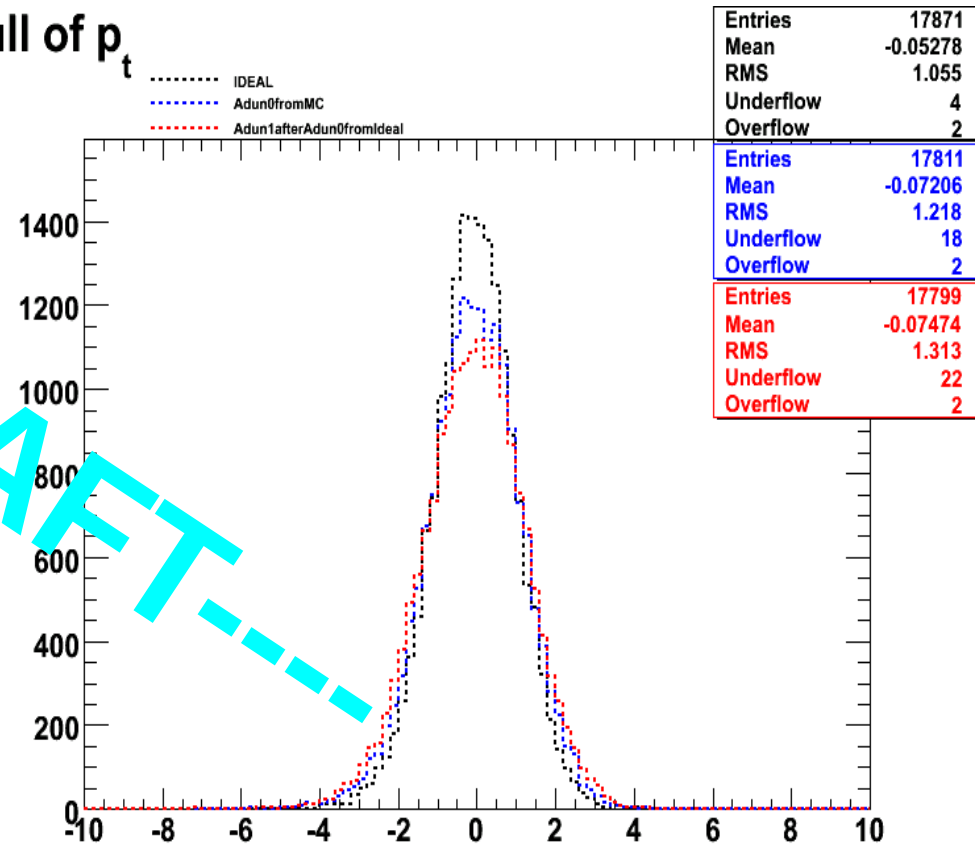
Adun Strategy on MC

- Adun strategy on MC starting from Ideal Geometry
- Validation with muons $p_T=100\text{GeV}$

pull of ϕ parameter

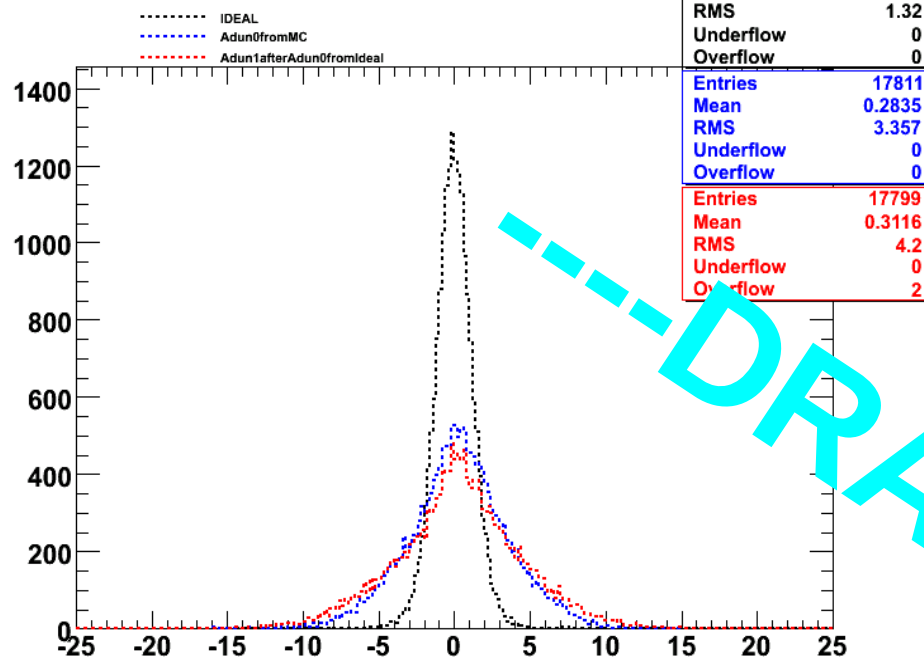


pull of p_t

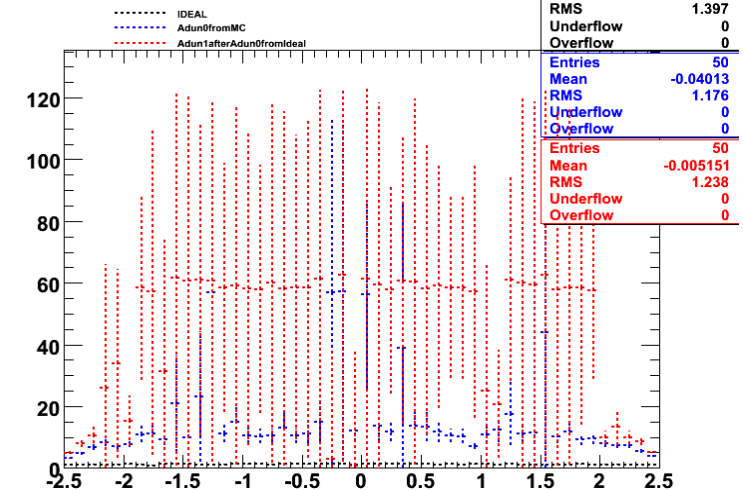


MC Validation Adun strategy

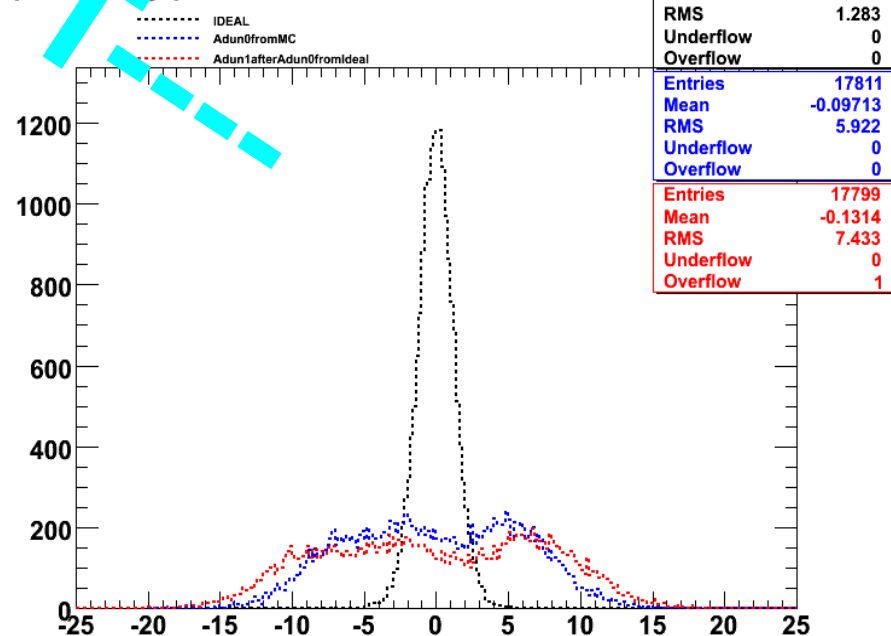
pull of dz parameter



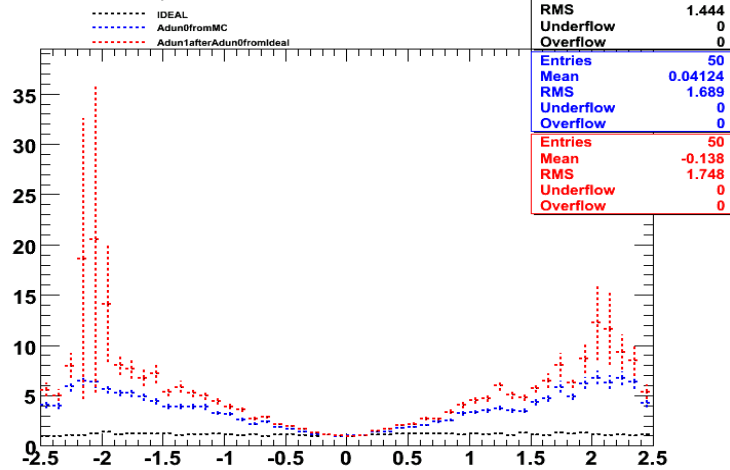
σ of dxy pull vs η



pull of dxy parameter



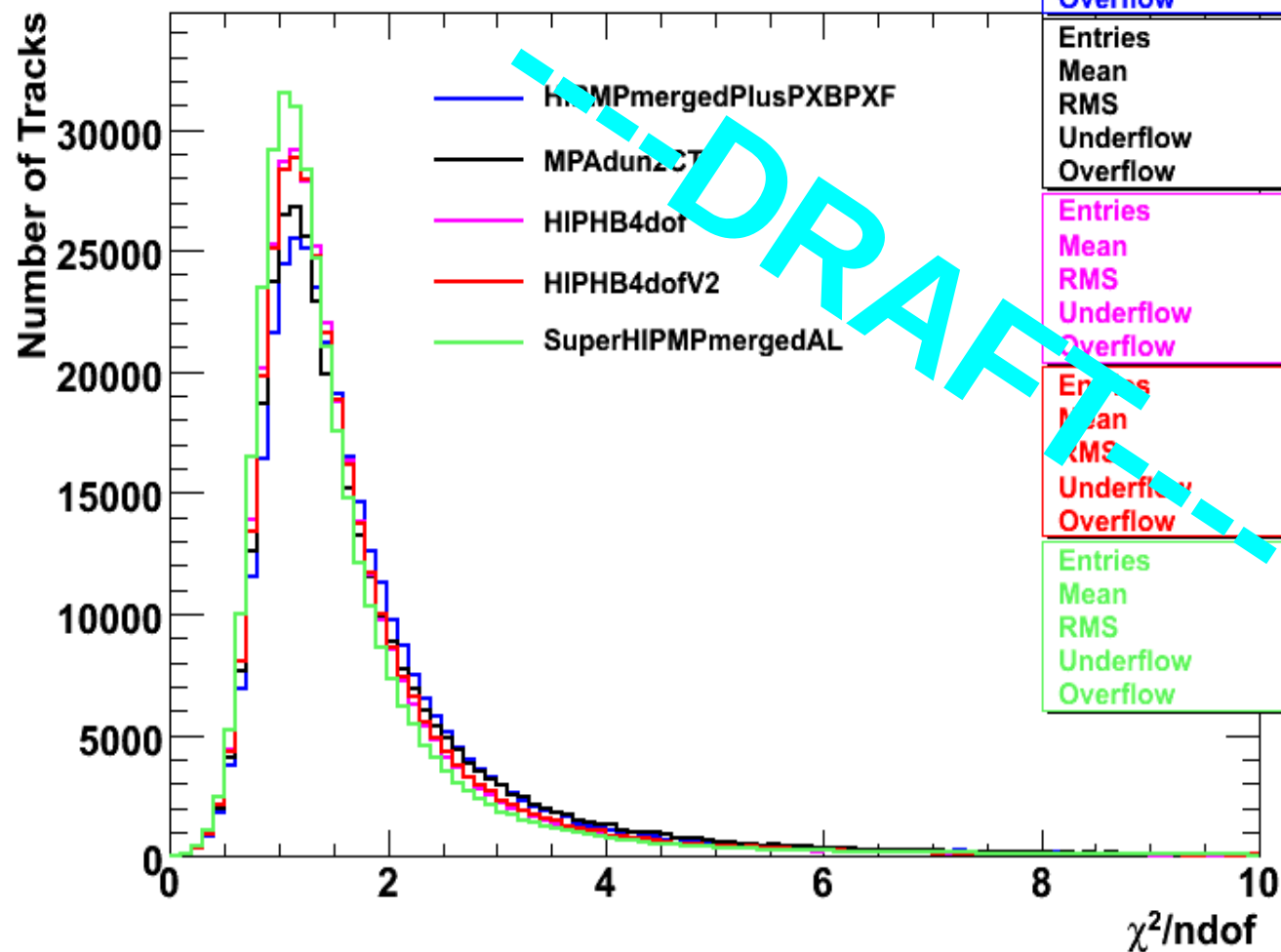
σ of dz pull vs η



Adun strategy on CRAFT data

Track Based Validation

χ^2/ndof



Entries	362211
Mean	1.809
RMS	1.219
Underflow	0
Overflow	7851

Entries	362284
Mean	1.811
RMS	1.275
Underflow	0
Overflow	7145

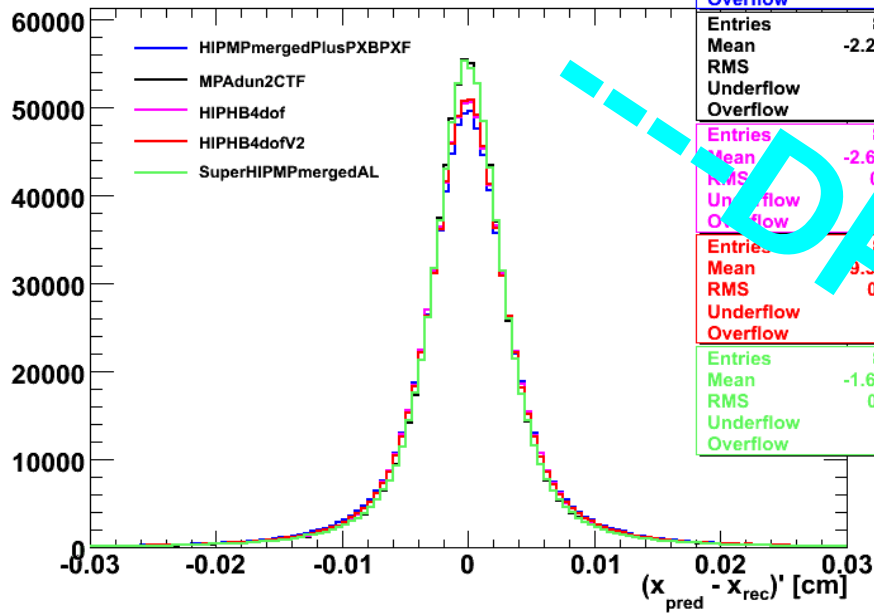
Entries	361392
Mean	1.651
RMS	1.08
Underflow	0
Overflow	5985

Entries	362347
Mean	1.676
RMS	1.107
Underflow	0
Overflow	5781

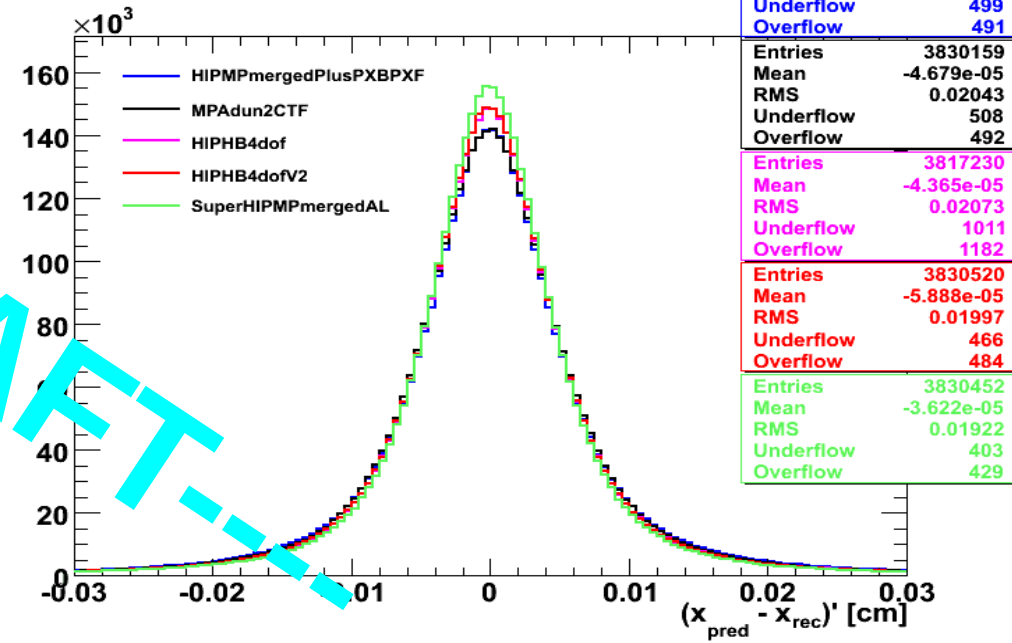
Entries	362324
Mean	1.59
RMS	1.098
Underflow	0
Overflow	6223

Strip Barrel Residuals

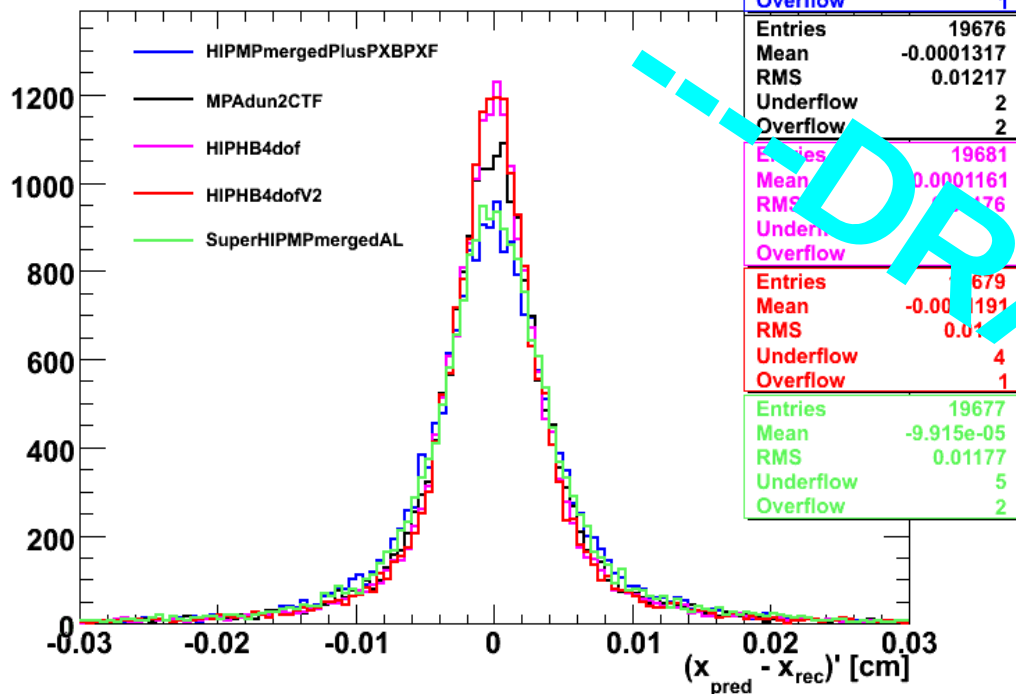
Residual for TIBBarrel 0 in Strip



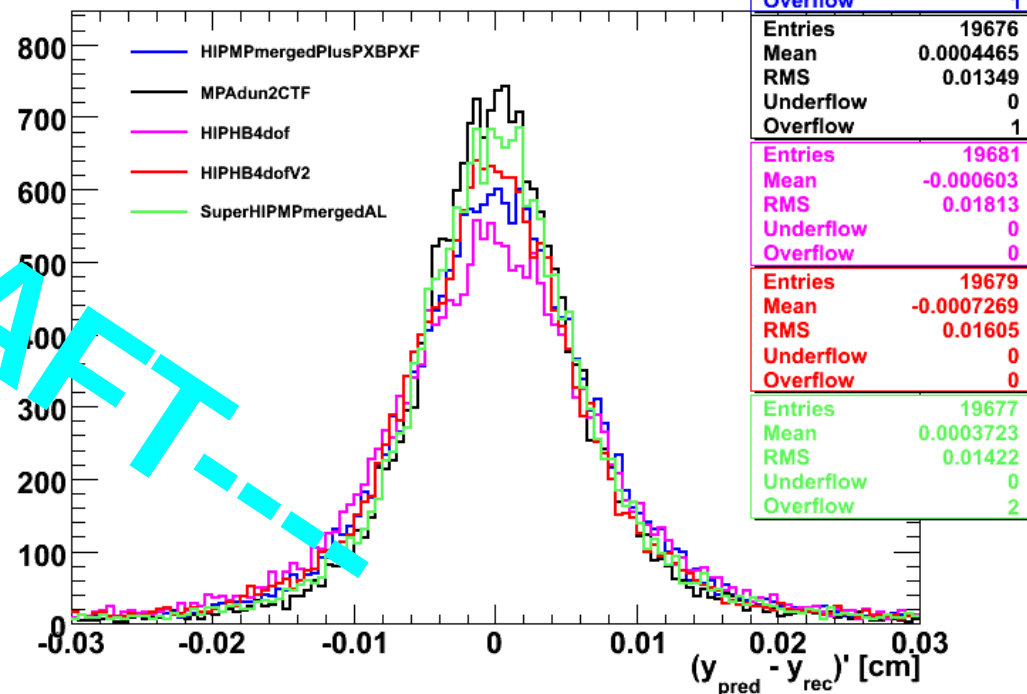
Residual for TOBBarrel 3 in Strip



Residual for TPBBarrel 0 in Pixel

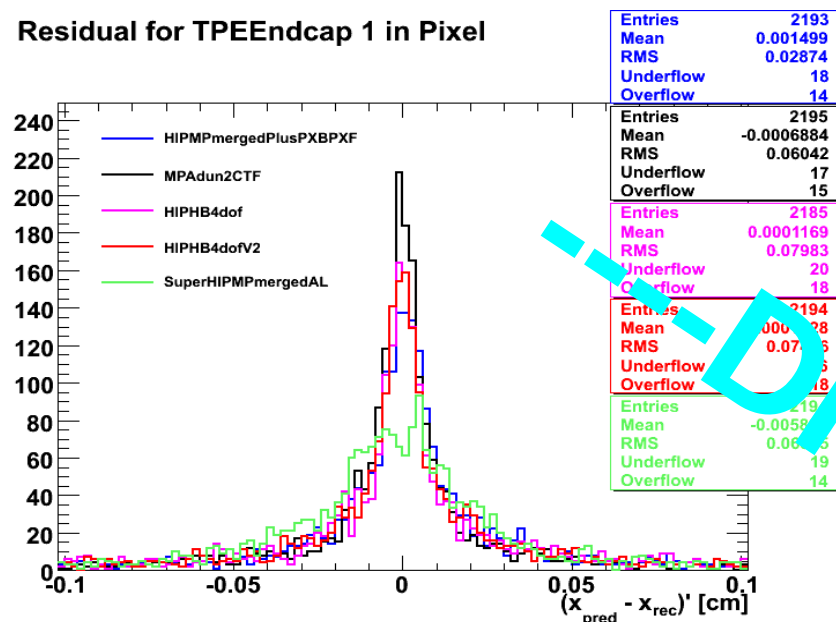


Residual for TPBBarrel 0 in Pixel

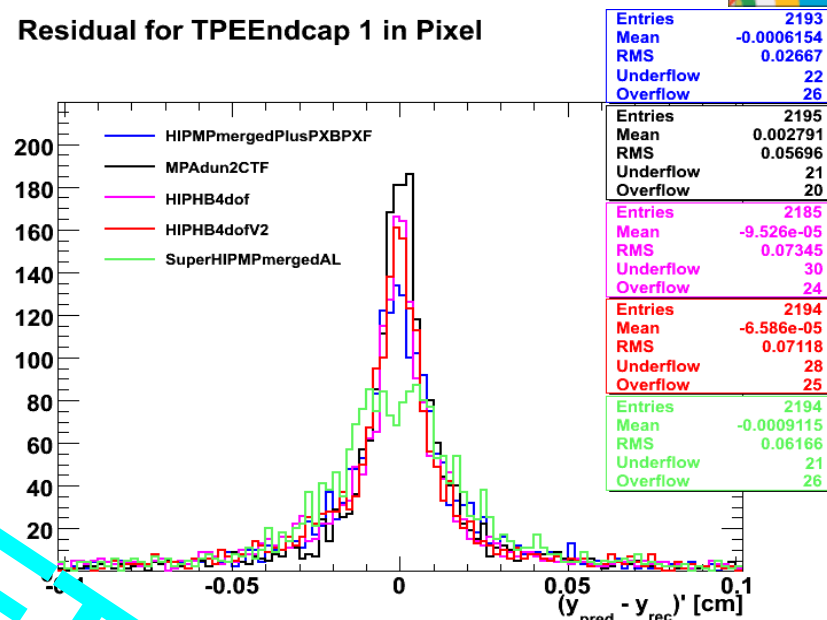


Pixel Endcaps Residuals

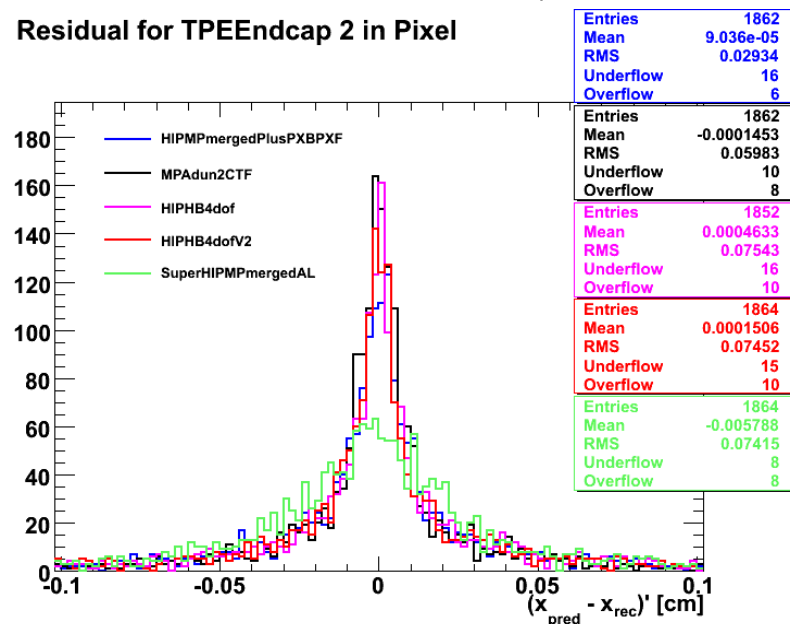
Residual for TPEEndcap 1 in Pixel



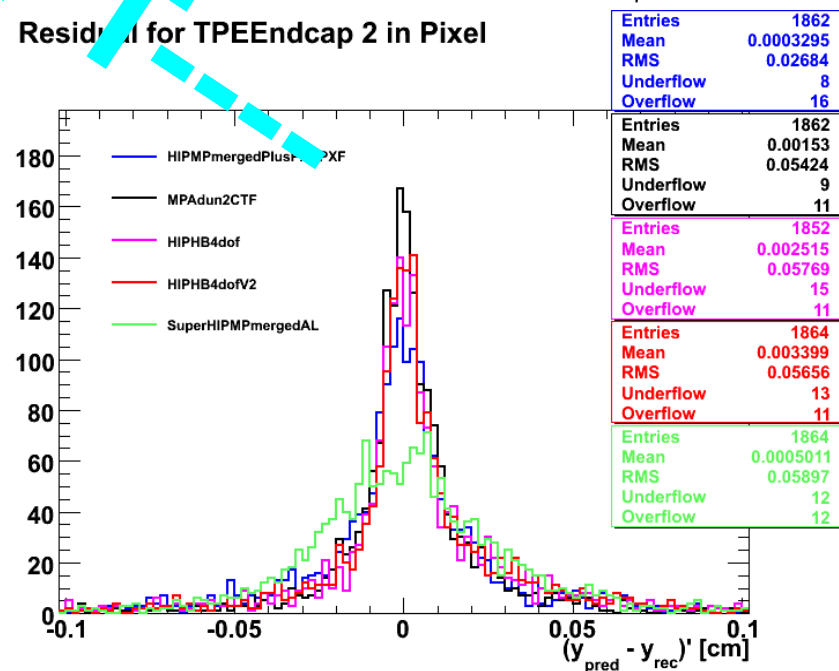
Residual for TPEEndcap 1 in Pixel



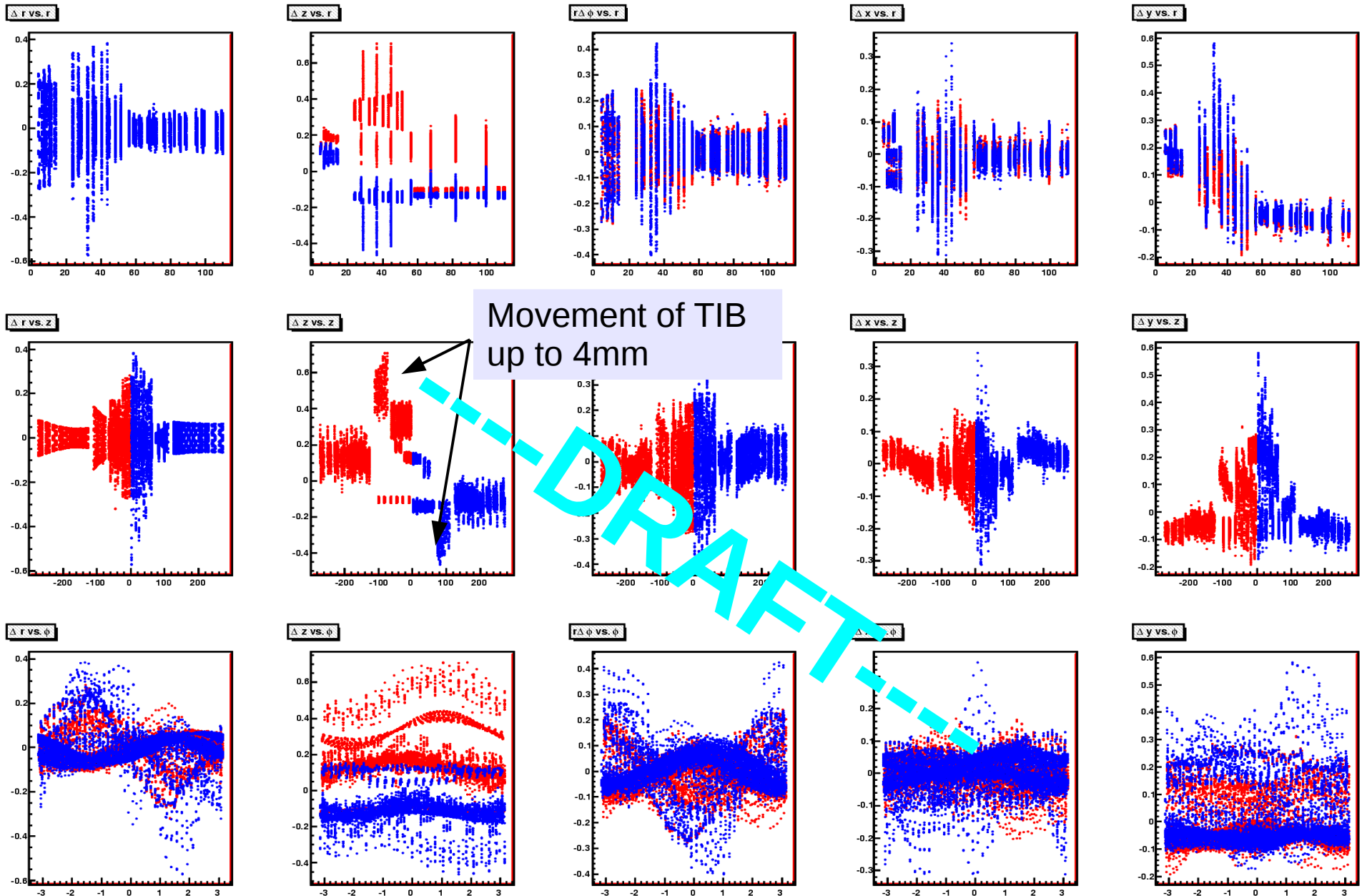
Residual for TPEEndcap 2 in Pixel



Residual for TPEEndcap 2 in Pixel



Adun on CRAFT geometry comparison





DMR plots Strip Barrel



---DRAFT---