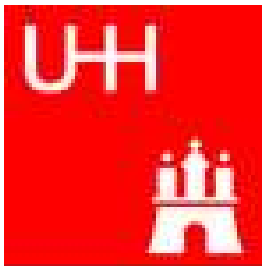


MP Alignment using Cosmics2010

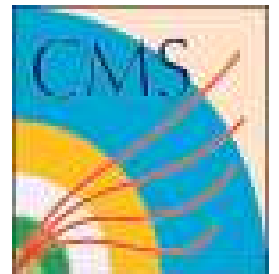
Outline:

First high level structure alignment with MP(BL and RK)

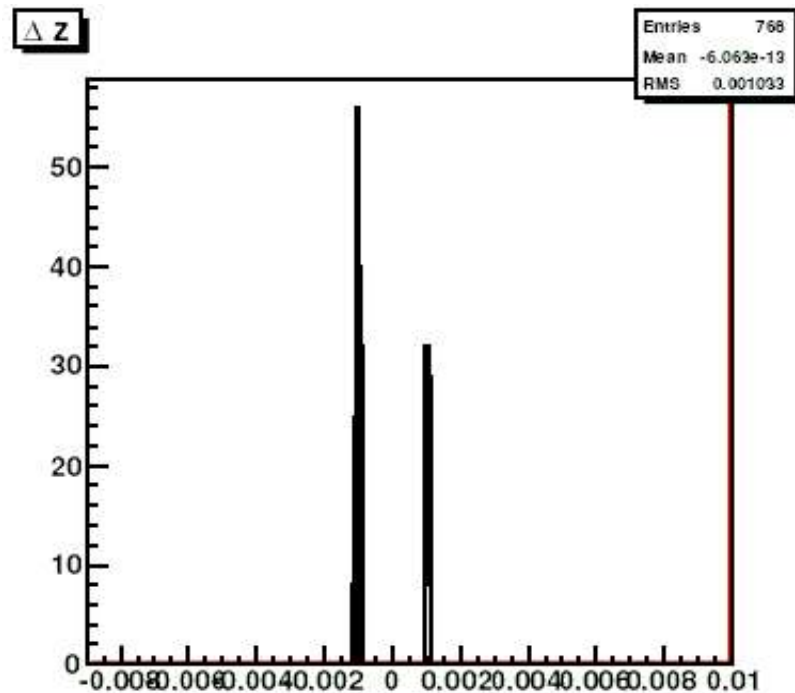
Geometry comparison and Cosmic track Splitting



Jula Draeger
University of Hamburg



Alignment with **Collision** data starting from Nov09 geometry vs. **Nov09** geometry

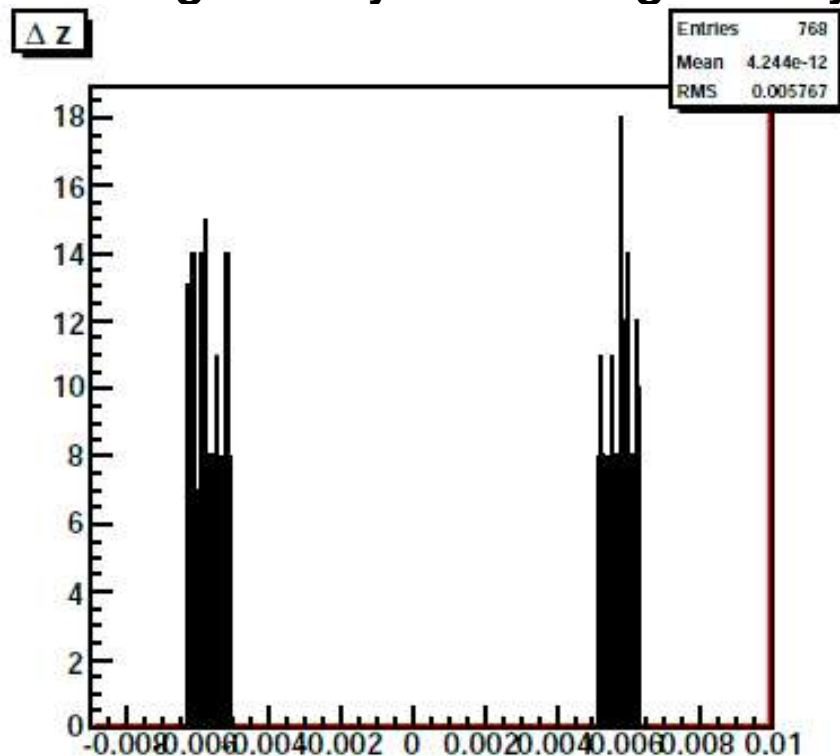


- high level structure alignment starting from Nov. geometry
(/afs/cern.ch/cms/CAF/CMSALCA/ALCA_TRACKERALIGN/PayLoads/CRAFT09/TrackerAlignment_2009_v1_prompt/123098-infity/TrackerAlignment_2009_v1_prompt.db)
- Movement of pixel half shells by 10 micron into opposite direction back towards Aug.09 geometry

- using CMSSW_3_5_2
- /Cosmics/Commissioning10-StreamTkAlCosmics0T-v3/ALCARECO
 - run range 128706-129433 (available until Sunday 28.02.)
- RungaKutta propagator (default since CMSSW_3_5_1)
- Broken Lines Coarse
- default cosmic track selection --> 948471 tracks after selection
- starting from Nov. geom(mp0098), MinBiasAlignment(mp0099) and Ideal(mp0100)

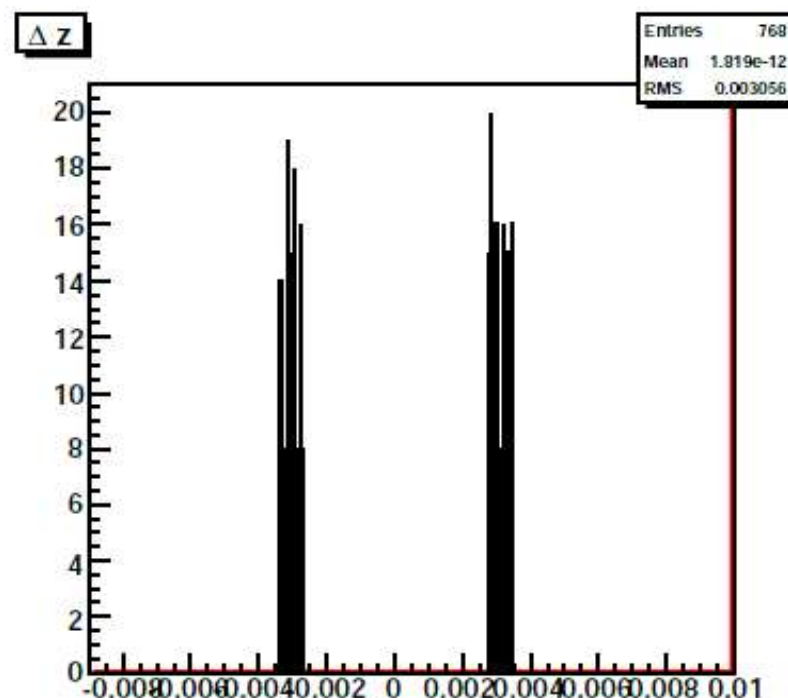
Pixel movement seen between Nov09 and Feb10 with Cosmics

Nov09 geometry vs. Feb10 geometry



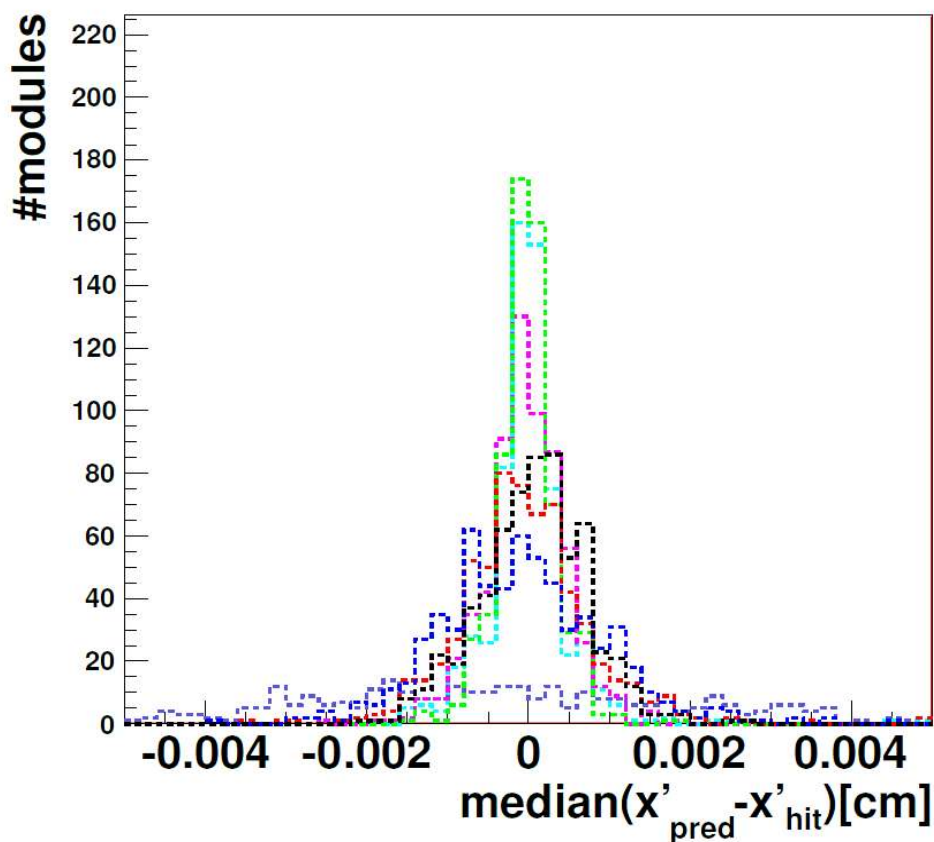
- again pixel-half-shell movement in z observed wrt Nov09 geometry
- 60 micron in opposite direction

MinBias geometry vs. Feb10 geometry

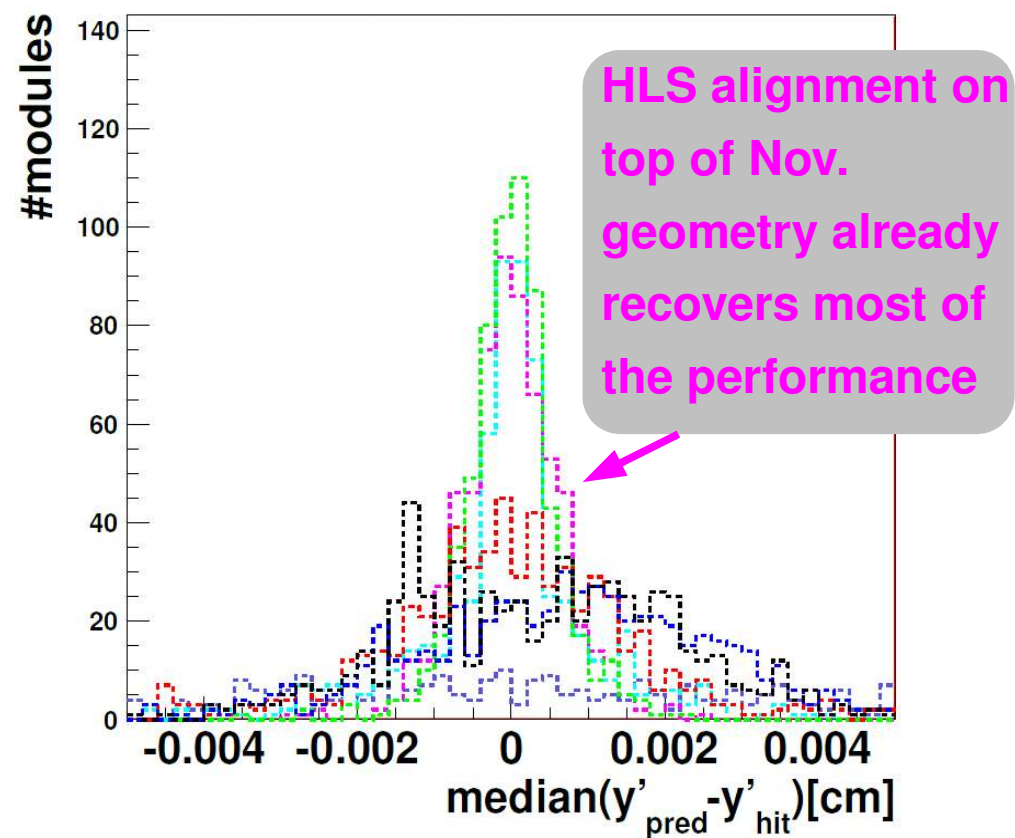


- movement also visible starting cosmics alignment from MinBias geometry

Distribution of the median of the residuals in TPB

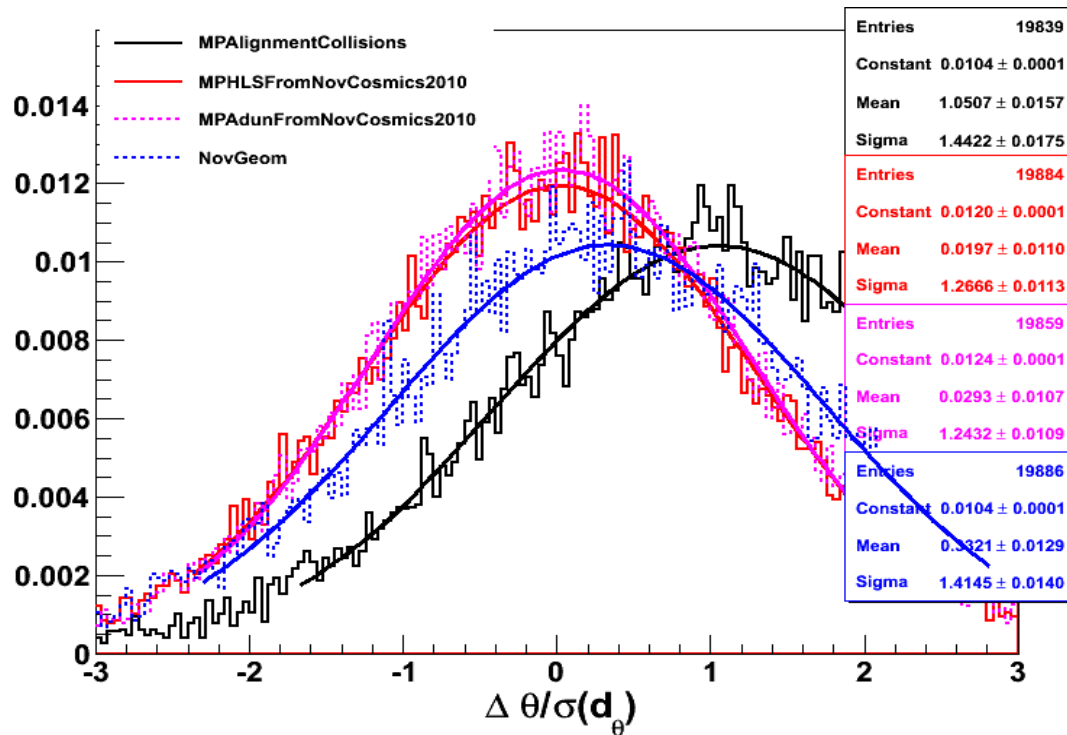


Distribution of the median of the y residuals in TPB



- Alignment from Ideal --> insufficient statistics
- MP AdunMerged from Nov. slightly better than MP AdunMerged from MinBias
- HLS from MinBias can not recover performance in y although half shells are shifted as well

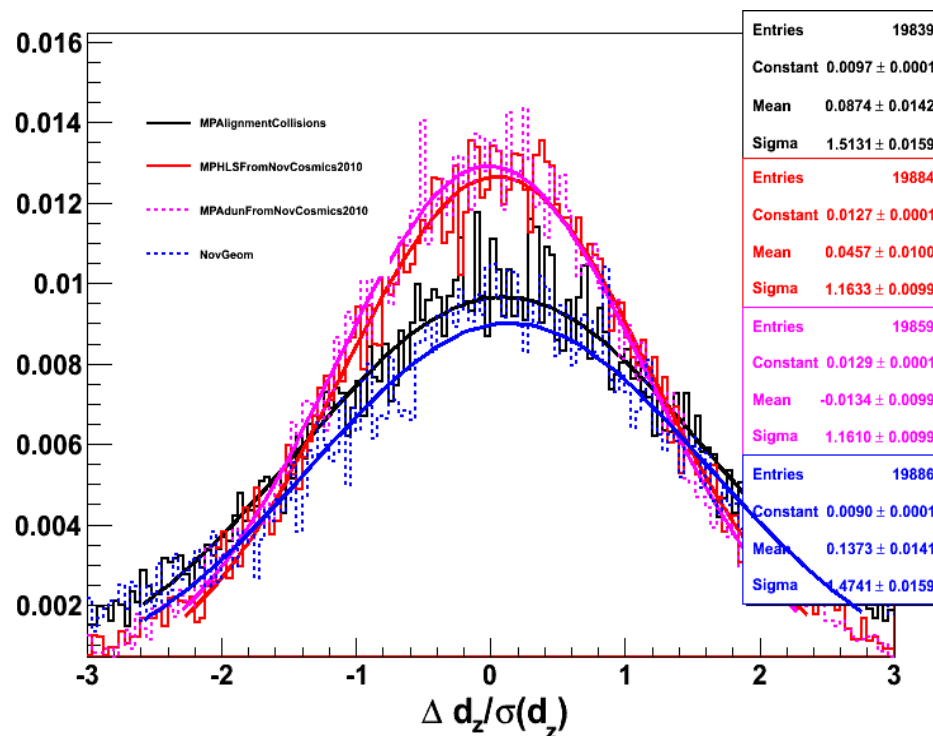
Pairs of Split Tracks



- MP-alignment with collisions norm. theta distribution shifted (mean ~ 1)
- Nov. geometry slight shift (mean 0.3)

- MP-alignment with collisions norm. dz distribution and Nov. geometry slightly broader sigma ~1.5

Pairs of Split Trac



Backup

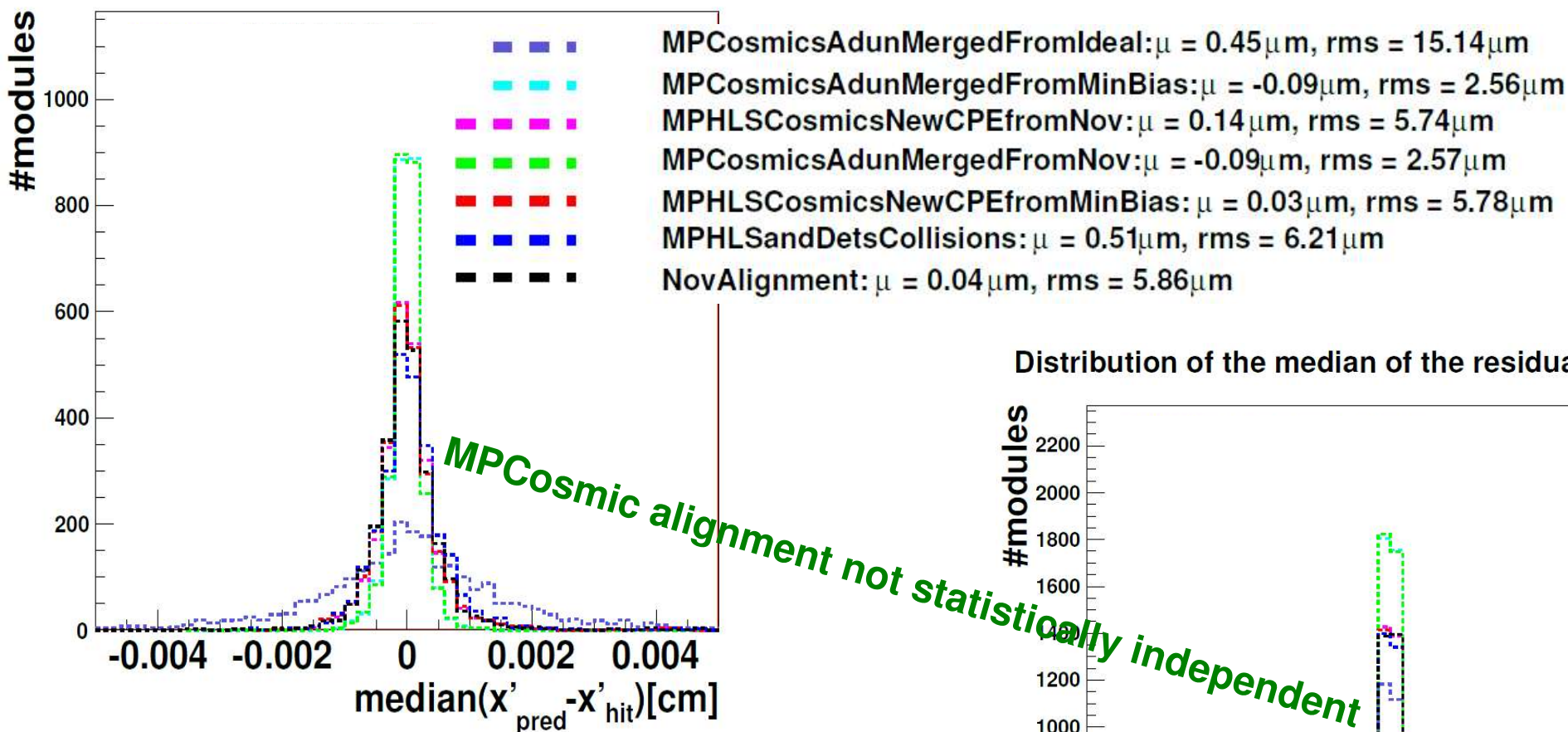
```
%MSG-e Root_Error: AfterBeginJob TUnixSystem::DispatchSignals() 25-Feb-2010  
11:12:25 CET BeforeEvents  
segmentation violation  
%MSG
```

Problem can be solved by

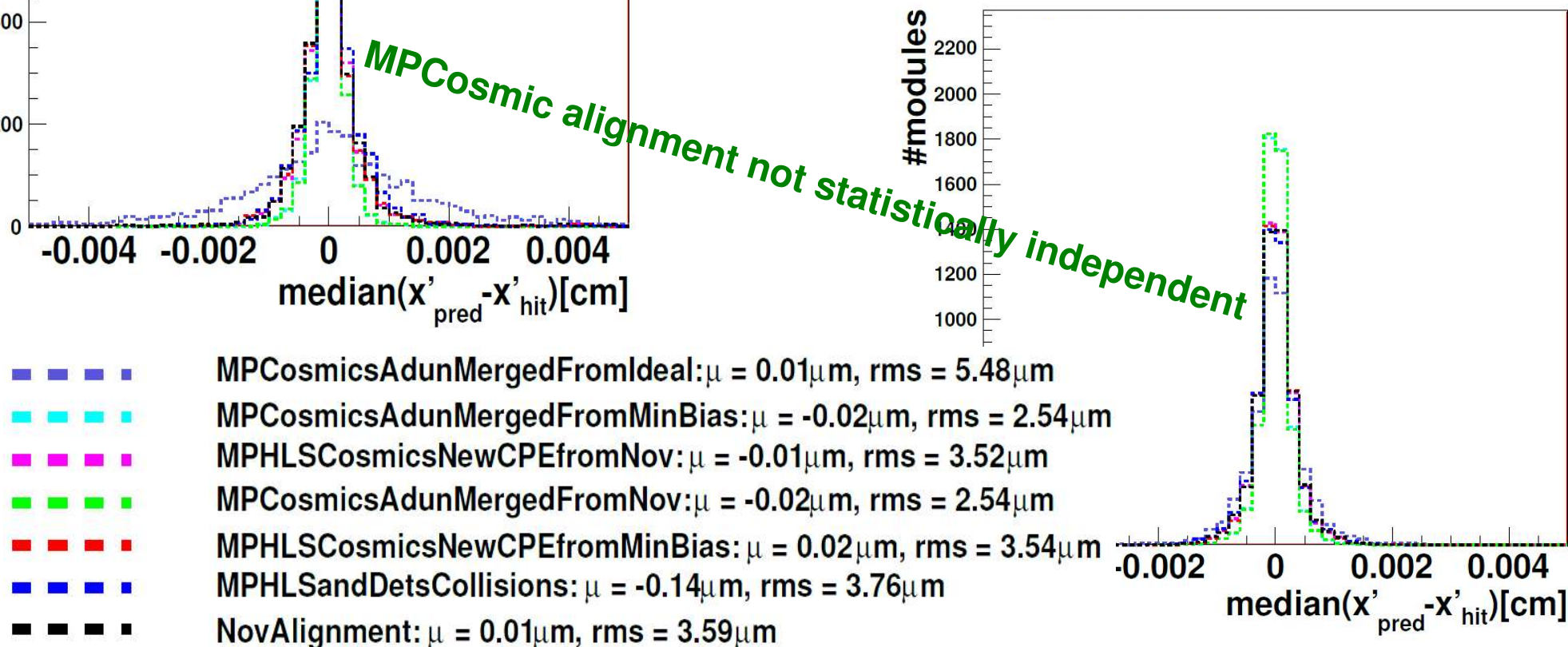
```
process.maxEvents = cms.untracked.PSet(input = cms.untracked.int32(1))
```

???

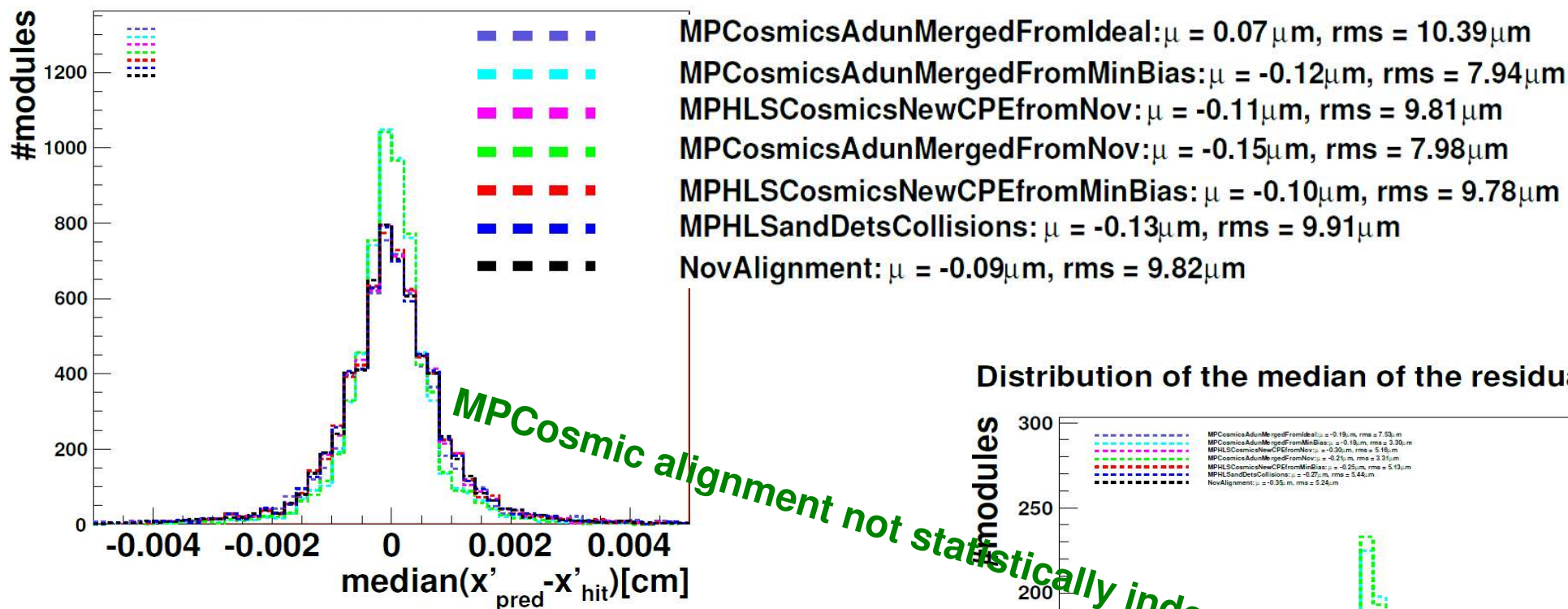
Distribution of the median of the residuals in TIB



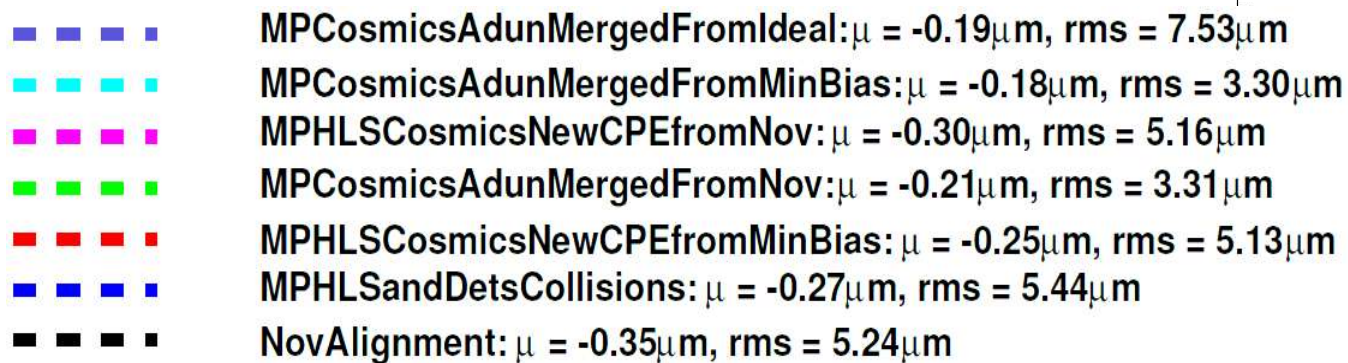
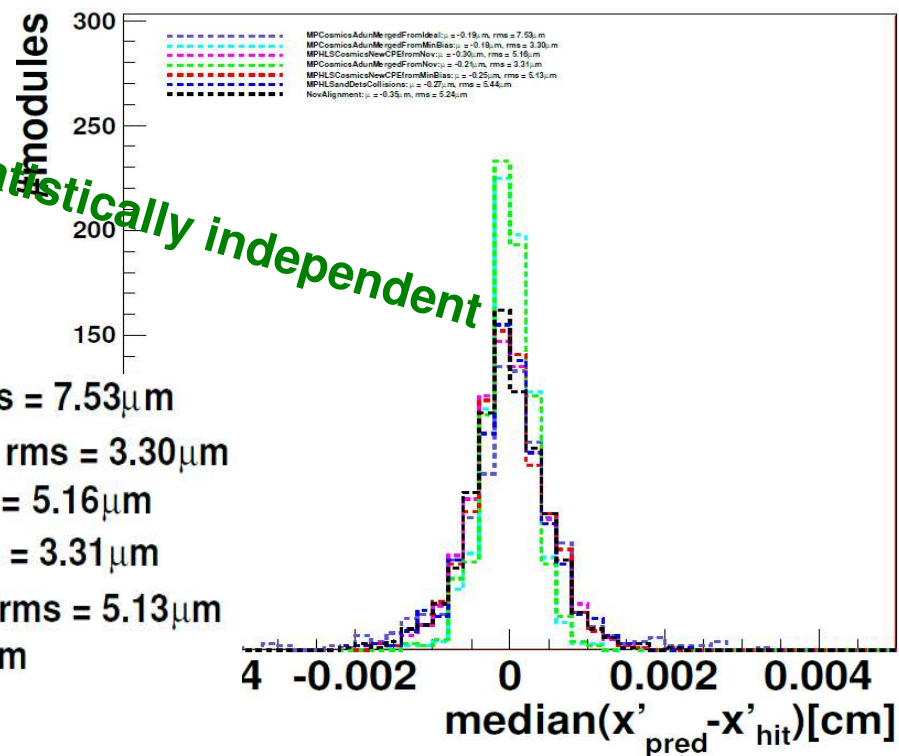
Distribution of the median of the residuals in TOB



Distribution of the median of the residuals in TEC



Distribution of the median of the residuals in TID



MPCosmic alignment not statistically independent