



# Status of Track-based Muon Alignment Paper

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17 July, 2009



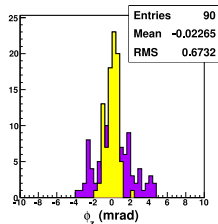
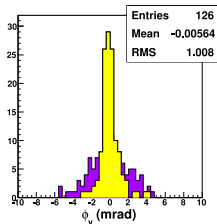
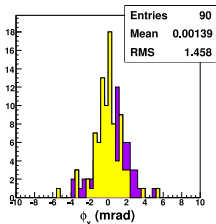
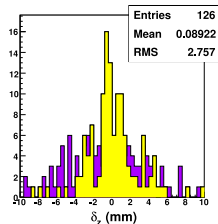
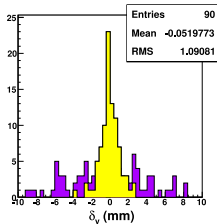
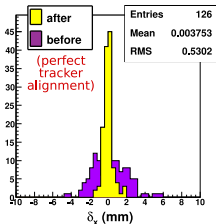
- ▶ Publicized on all the muon detector-related HyperNewses
- ▶ DT-DPG, CSC-DPG, AICa group, and Muon Alignment Community
- ▶ Presentations:
  - ▶ this one (status and updates)
  - ▶ Tuesday, 21 July: AICa (brief summary)
  - ▶ Thursday, 23 July: DT-DPG (content in some detail)
- ▶ Received and incorporated detailed comments from Tim Cox and Armando Lanaro (CSC-DPG; they feel an additional presentation is not needed)
- ▶ If approved, it will be passed on to ARC on Thursday
- ▶ ARC will have 3 weeks to review, rather than 4 (until Aug 15)

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- ▶ Local DT alignment (2) has been through many iterations; very solid
- ▶ Global MillePede (4.2) could be streamlined to avoid repetition
- ▶ MC Study (4.3) is now symmetric between the two algorithms
- ▶ 24 pages (including title and blank), 13 figures

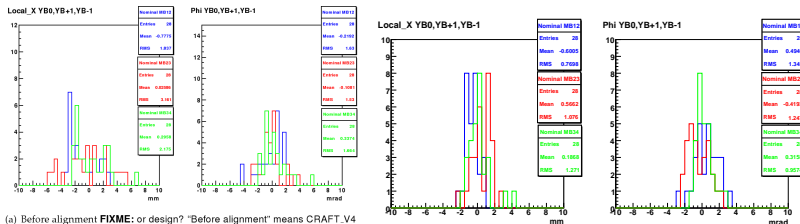
# New plot: MP MC results

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- Fills in the missing information to explain HIP-MP difference
- $(\sigma_{\text{data HIP-MP}})^2 \approx \sigma_{\text{MC HIP}}^2 + \sigma_{\text{MC MP}}^2$  (except  $\sigma_{\text{MC MP}}^2$  is *wider* in  $\phi_x, \phi_y$ )
- See it in context on page 19 and 21

# Replacing plot: “before alignment” Jim Pivarski 5/7



- ▶ Left (old) is actually design geometry, rather than CRAFT\_ALL\_V4
- ▶ Right (new) is CRAFT\_ALL\_V4, same baseline as other plots in the “4.4 Global Alignment Results and Cross-Checks” section
- ▶ “After alignment” results are still significantly better than CRAFT\_ALL\_V4
- ▶ See it in context on page 22



## References

- 398
- 399 [1] CMS Collaboration, "CFT-09-017," *J. Inst.* (2009).
- 400 [2] "<https://twiki.cern.ch/twiki/bin/view/CMS/CMSConventions>,".
- 401 [3] CMS Collaboration, "CFT-09-003," *J. Inst.* (2009).
- 402 [4]
- 403 [5] CMS Collaboration, "CFT-09-017," *J. Inst.* (2009).
- 404 [6] CMS Collaboration, "CFT-09-017," *J. Inst.* (2009).

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- ▶ References need work: some of these are in my sections, some in Local DT and MillePede sections
- ▶ Also, I should improve the abstract (and title) this week
- ▶ These are odds and ends: the paper is fully readable in this state



- ▶ Last minute MillePede MC work helps to make sense of the comparison plot; that section is more understandable as a result (thanks!)
- ▶ 1 week internal review (DPGs, AICa, MuAli) is a reasonable requirement: the process is ongoing (until next Thursday)
- ▶ Shorter ARC review will need to be highly organized to meet the Aug 15 deadline
- ▶ Gervasio and I will be available through the review process