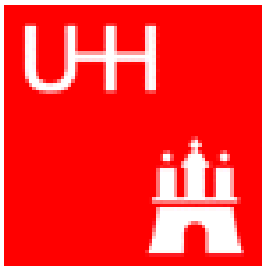


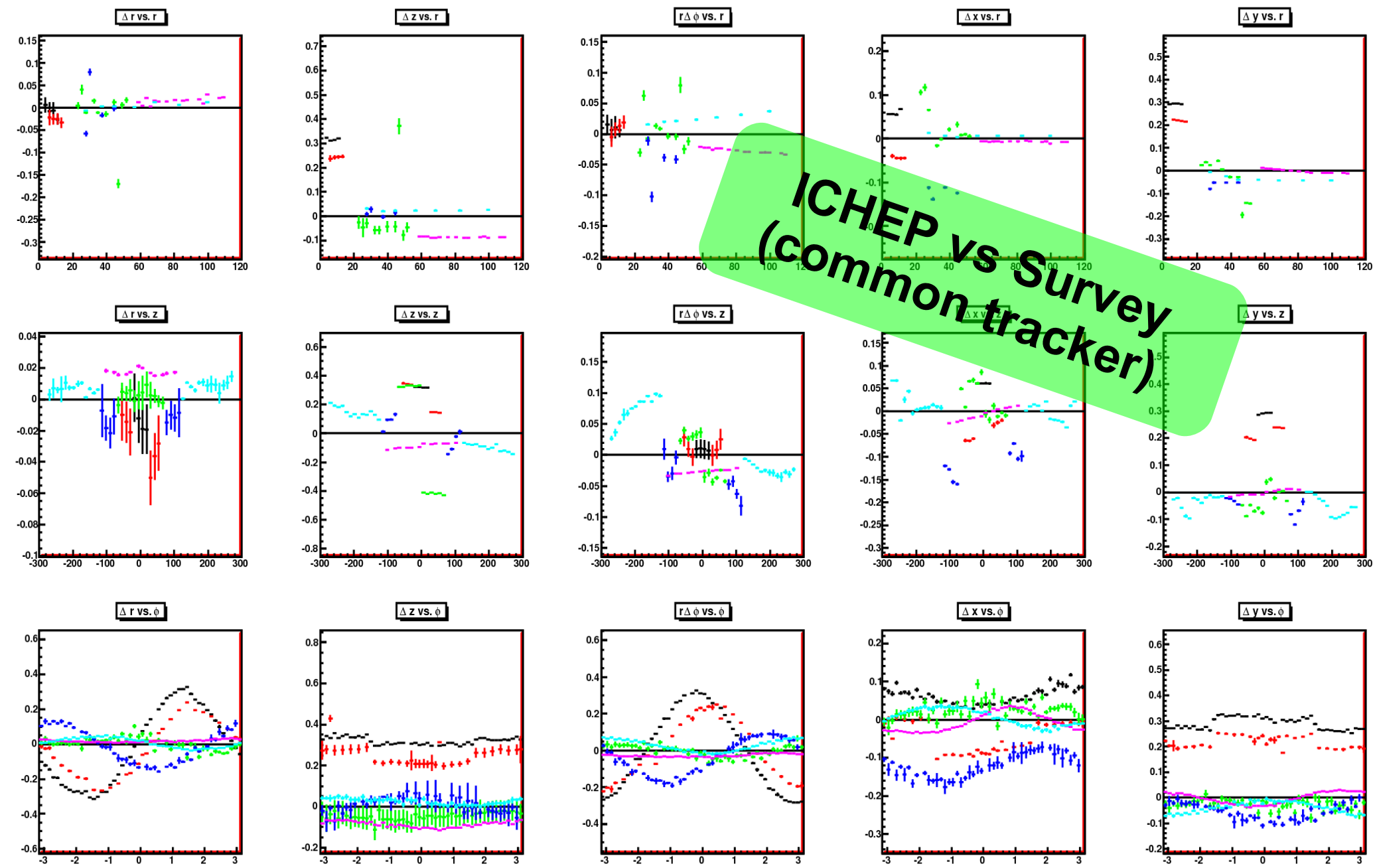
Millepede Alignment Summary z-shrinkage

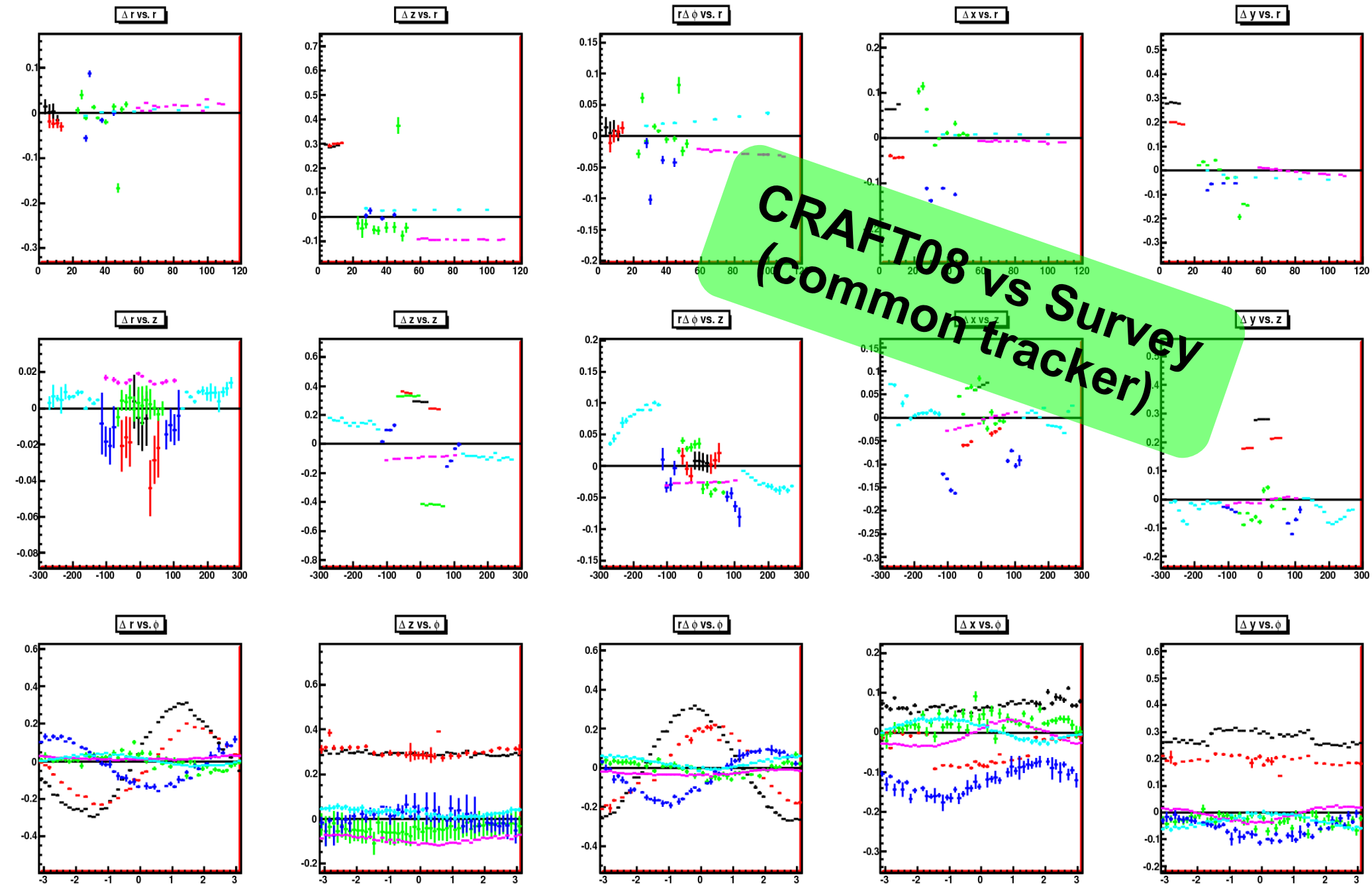


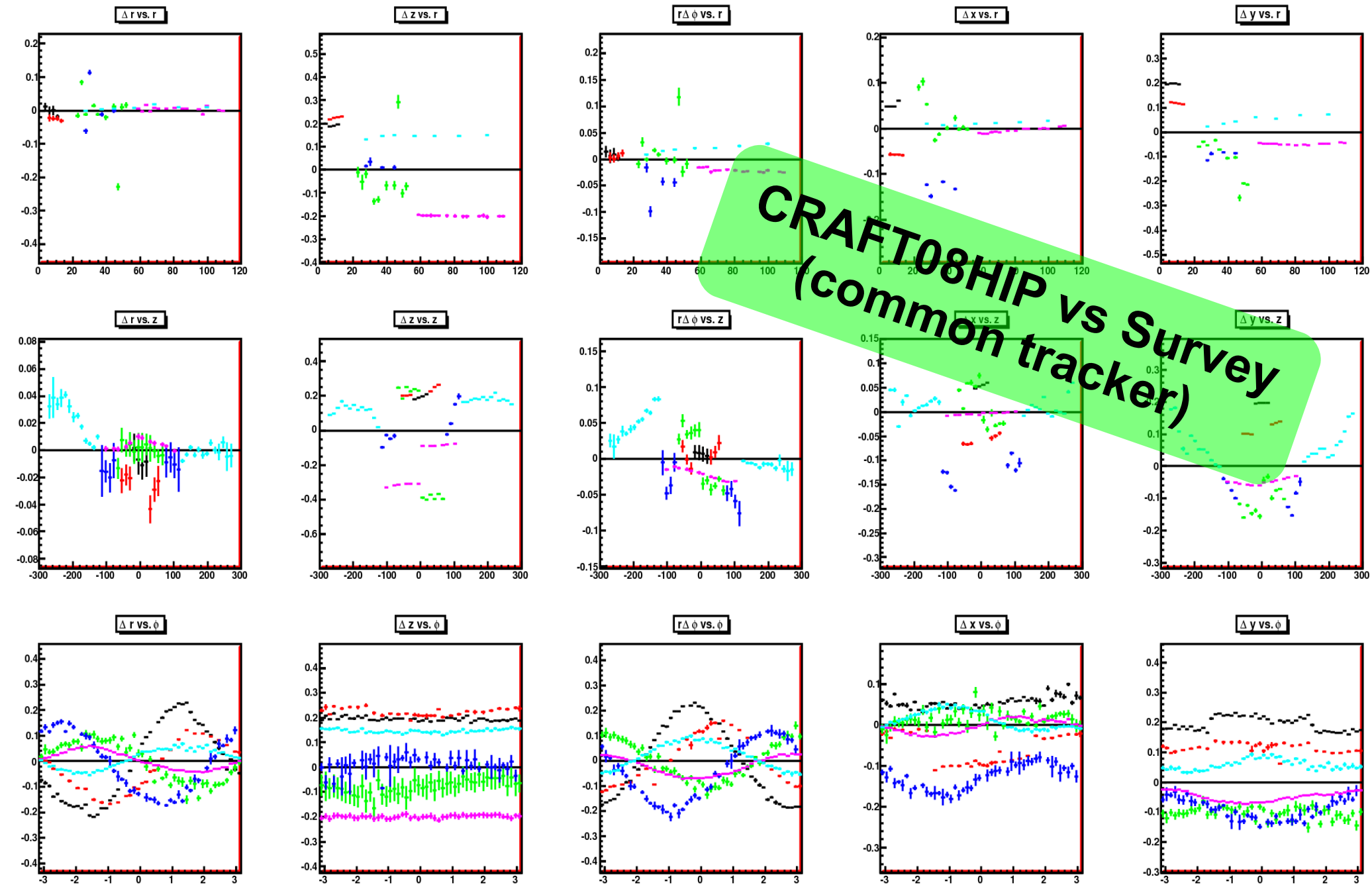
Jula Draeger
University of Hamburg

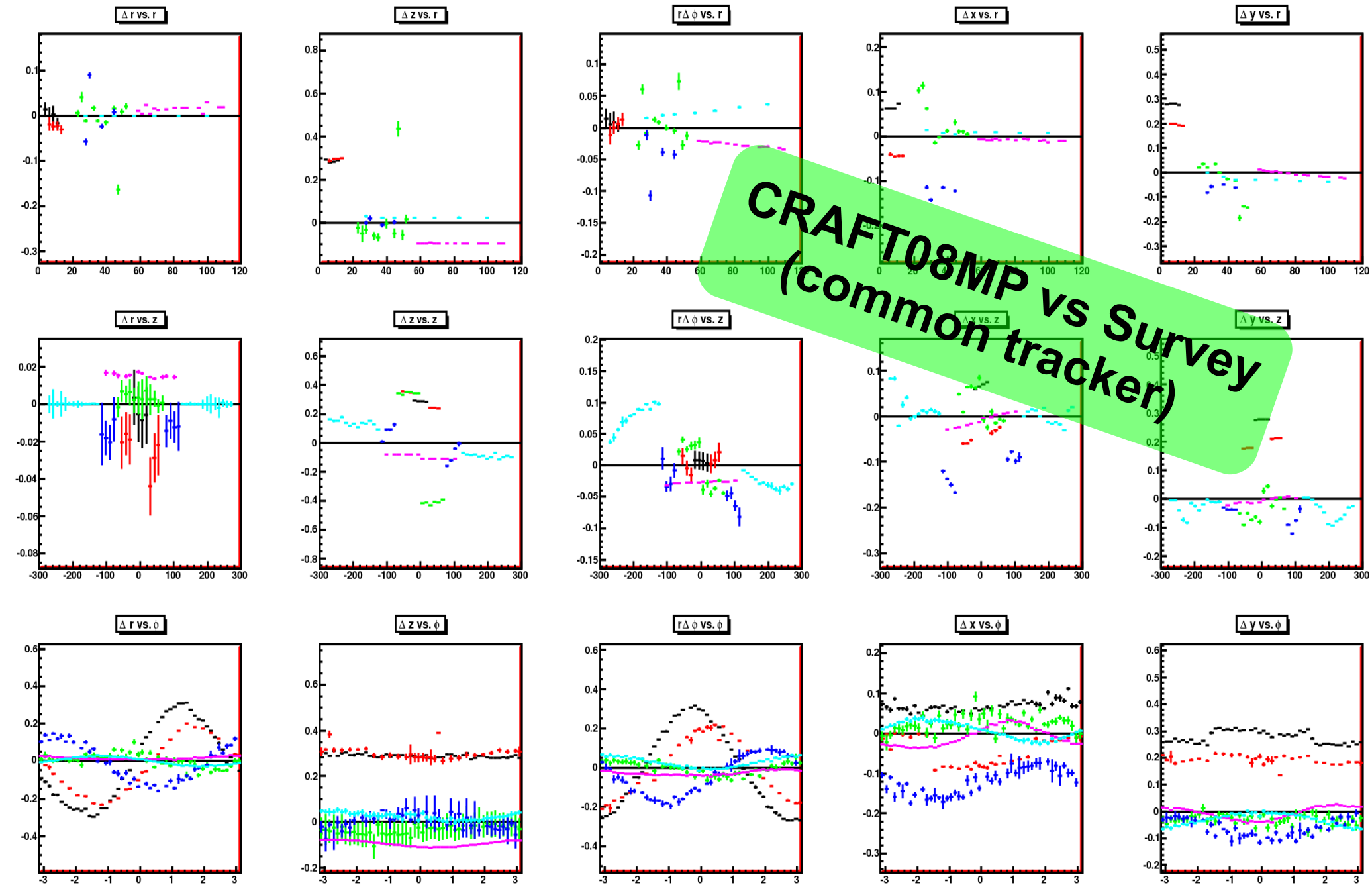


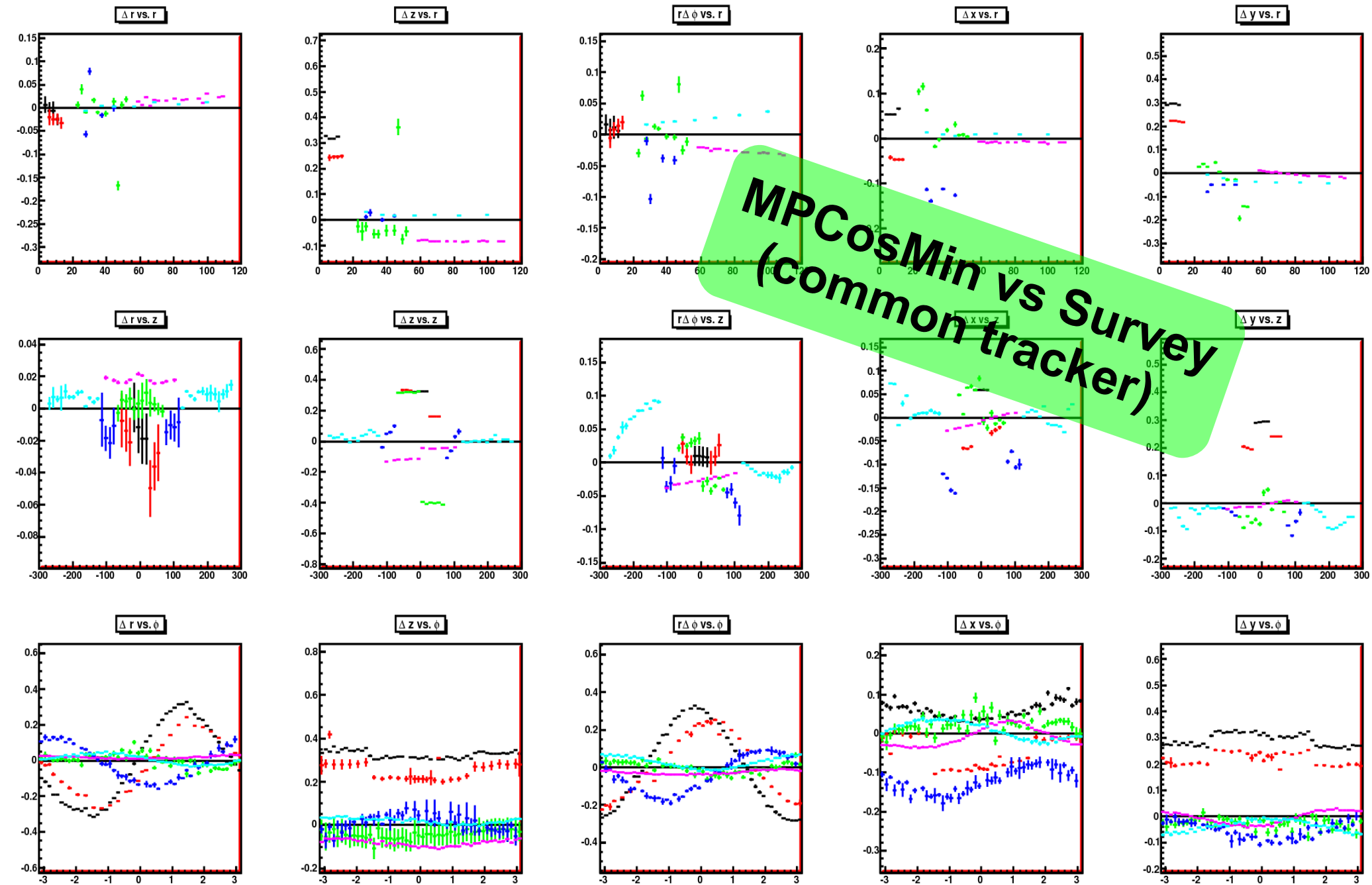
- Geometry comparison using the survey in TEC
 - Which objects show shrinkage/expansion?
 - When was it introduced (or was it there from the beginning)?
 - MP internal studies
 - Results from the CosMin studies by Frank
 - MC studies (Gero, Julia): r-bias translated to z-bias
 - Exclusion of stereo module information
- inconsistencies in results







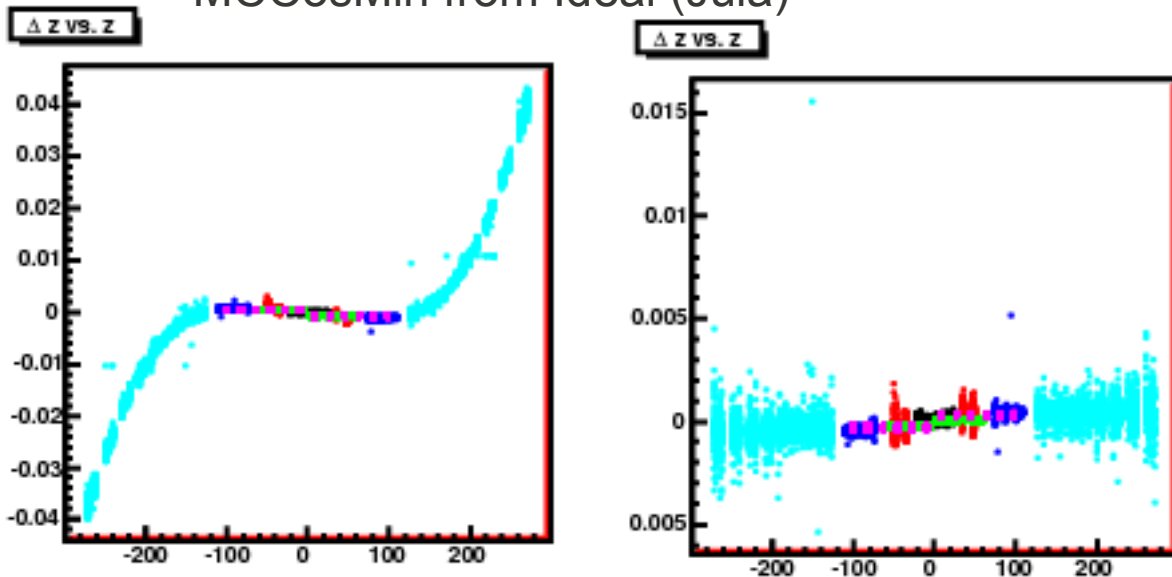




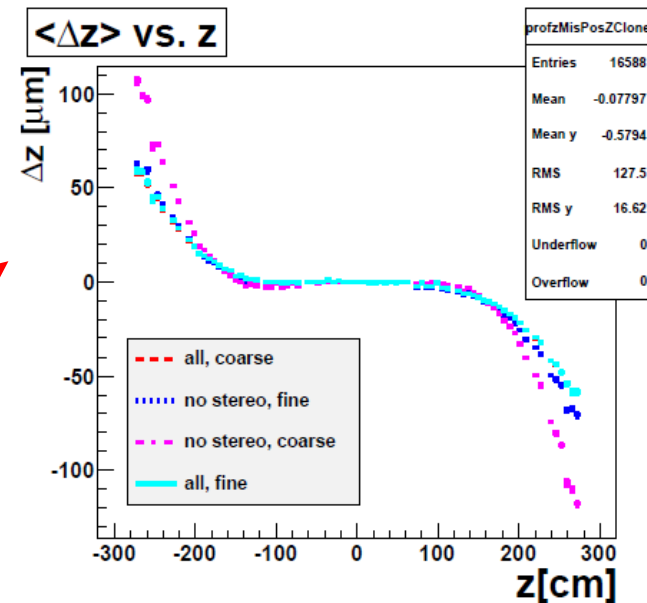
- Why was the expansion introduced by Adun approach?
 - First Adun step in CRAFT08: 2D modules without radial freedom (?) z-expansion?
- Is the observed shrinkage in z using MinBias real sensitivity overlayed by a smaller continuous shrinkage?
 - studies from Frank, iterating CosMin approach on data
<https://frmeier.web.cern.ch/frmeier/alignment/mp0295ff/>
- Fazit:
 - 1) the shrinkage is slightly diminishing but no convergence to be observed after 5 iterations
 - 2) Problem of floating TOB
 - no fixed reference were used for this study

- As effect was seen also in MC
 - Geros suggestion: small bias in r (also seen in barrel) is translated into a large bias in z in the TECs
 - Removing the stereo modules from the alignment should solve the problem...
 - ✓ CosMin approach (Adun merged) does not see the problem
 - ⚡ does not work out for simpler Ansatz (Gero)

MCCosMin from Ideal (Jula)



Simplified settings Gero

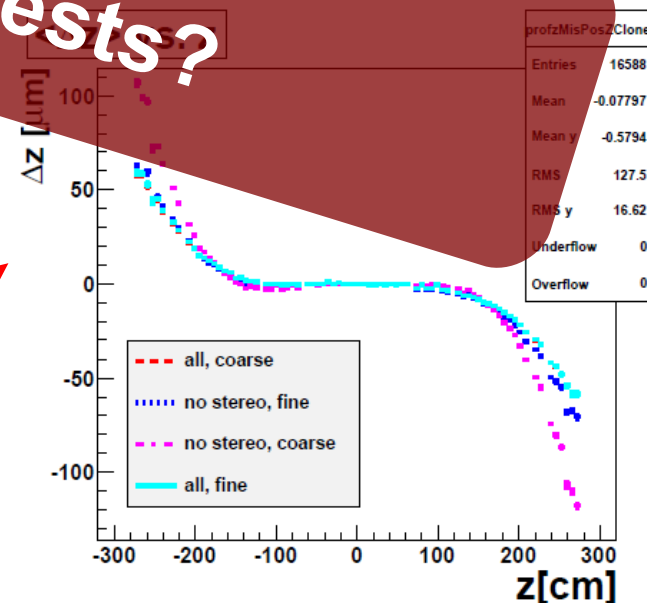
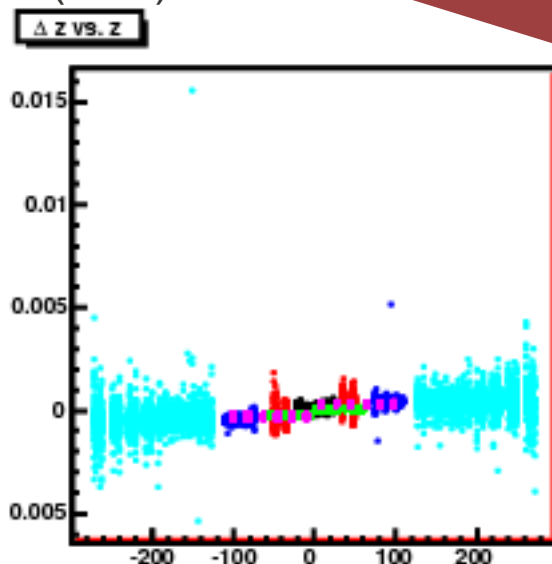
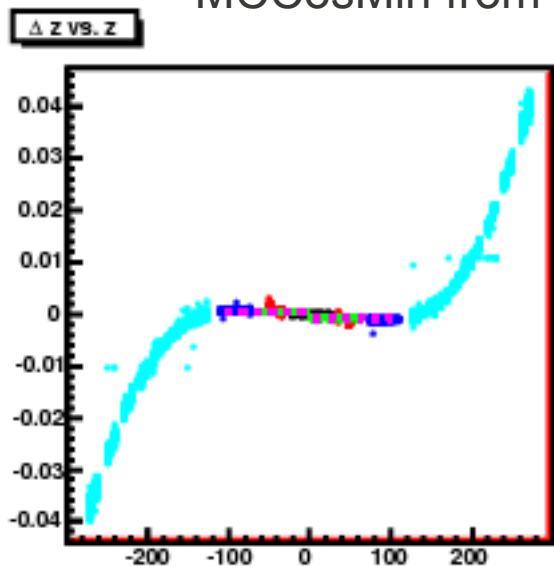


- As effect was seen also in MC
 - Geros suggestion: small bias in r (also seen in barrel) is translated into a large bias in z in the TECs
 - Removing the stereo modules from the alignment should solve the problem.

How do we proceed?
What are possible next tests?

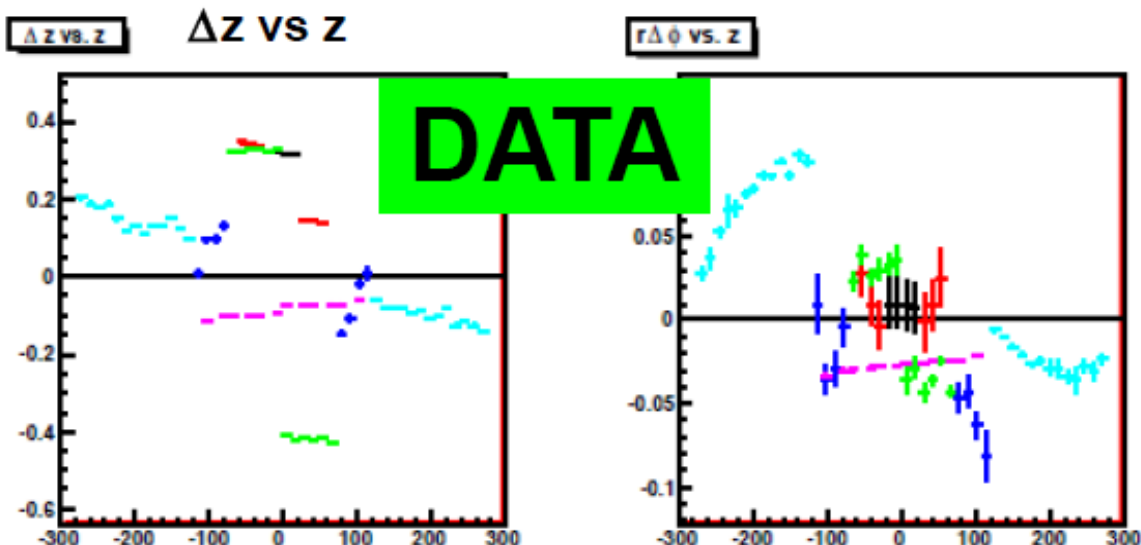
MCCosMin from Ideal (Jula)

Simplified settings Gero



Backup: z-expansion ported to MC startup scenario

1. CRAFT10 vs Survey



- Expansion already introduced 'during the CRAFT alignment(s)

2. Tracker Realistic vs. IDEAL

- Propagated to MC tracker realistic scenario
- Smaller scale (500 micron)

