

Weak-Mode Studies 2012

First Steps

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DESY

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Motivation & Introduction

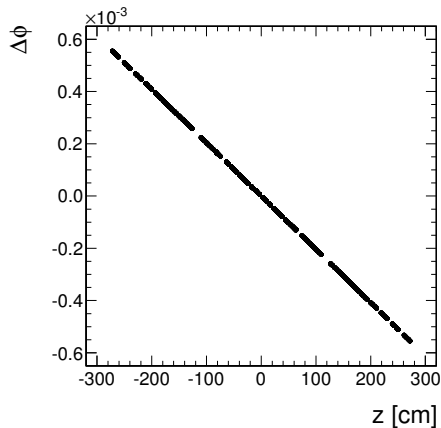
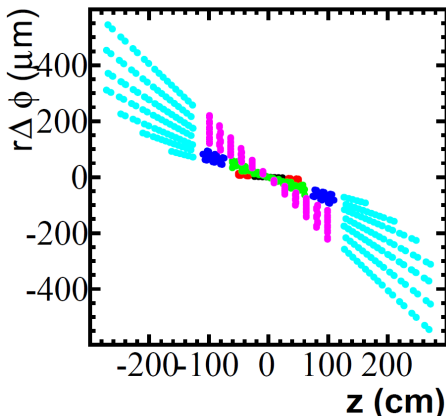
- Minimisation of residuals can be insensitive to certain global distortions ('weak modes')
- Study sensitivity of 2012 alignment to some systematic distortions¹ ('misalignment scenarios')
 - ▶ Start from an output geometry of the 2012 alignment effort
 - ▶ Distort geometry according to misalignment scenario
 - ▶ Run alignment fit and check whether misalignment is still present or whether it can be mitigated
- First steps
 - ▶ Learn how to create misaligned geometry
 - ▶ Learn how to visualise and validate the geometry

¹Done by Jörg for 2011 alignment, e. g.

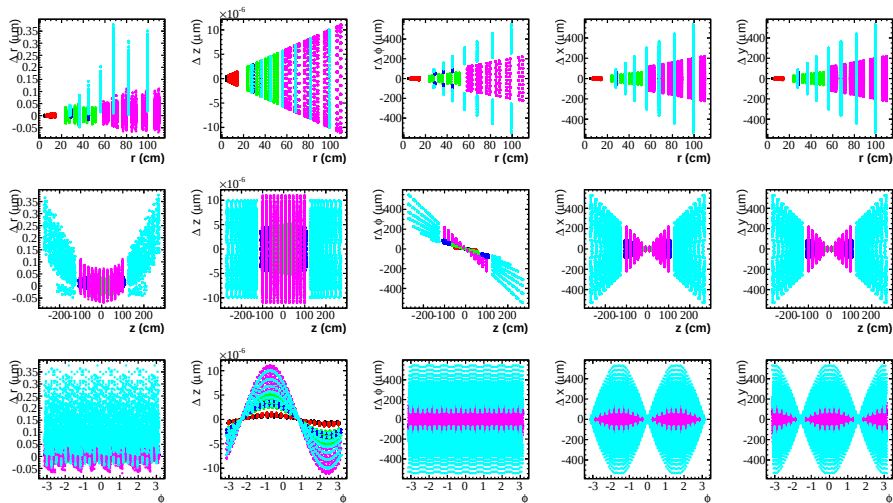
<https://indico.cern.ch/getFile.py/access?contribId=3&sessionId=1&resId=0&materialId=slides&confId=167331>

Systematic Misalignment: Twist

- Parametrised in cylindrical coordinates: $\Delta\phi \propto z$
- Colour coding: subdetectors

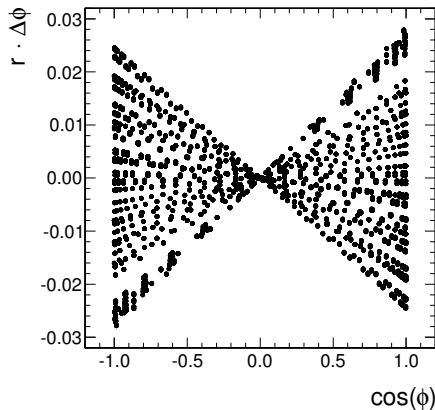
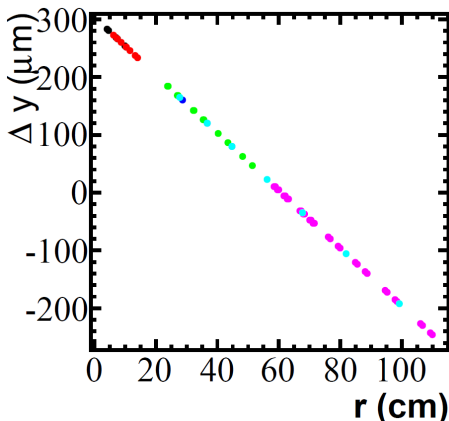


Systematic Misalignment: Twist



Systematic Misalignment: Sagitta

- Parametrised in cylindrical coordinates: $r\Delta\phi \propto \cos\phi$
- Colour coding: subdetectors



Systematic Misalignment: Sagitta

