

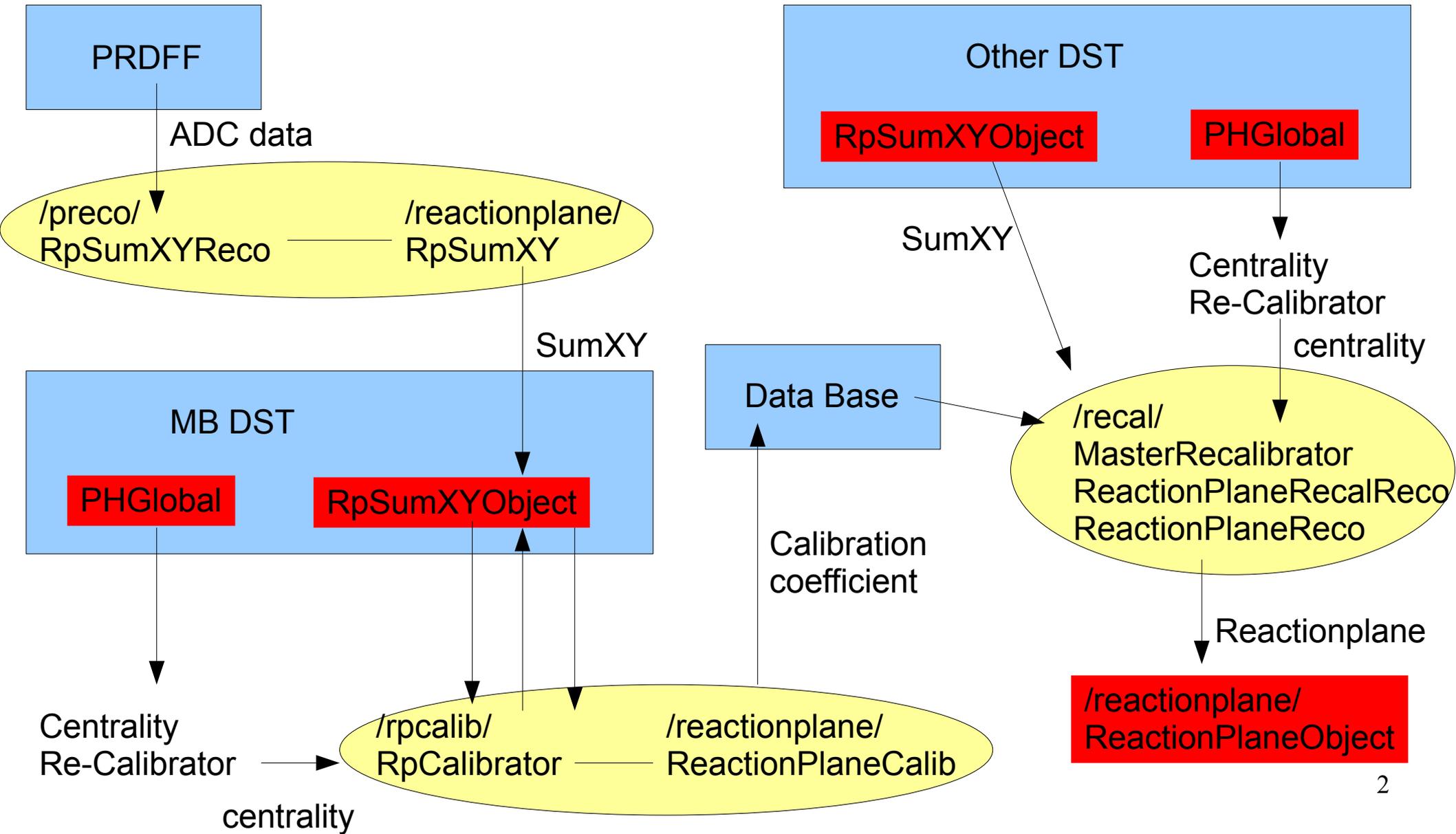
# Reaction Plane Calibration

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# Calibration flow



# How to get reaction plane

Use following functions  
after re-calibrate by MasterRecalibrator.

```
ReactionPlaneObject* d_drp =  
findNode::getClass<ReactionPlaneObject>(topNode, "ReactionPlaneObject");  
  
d_rp->getBBCrp12();  
d_rp->getRXNrp18();
```

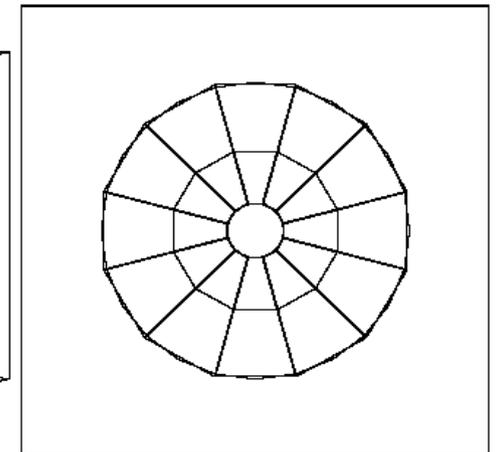
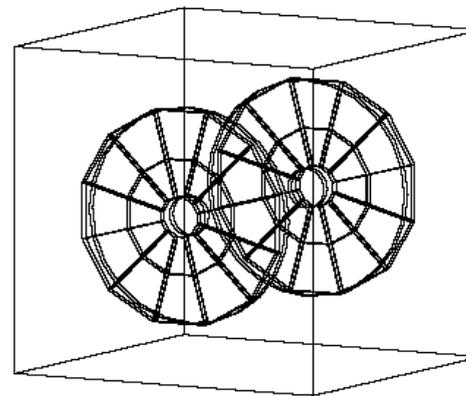
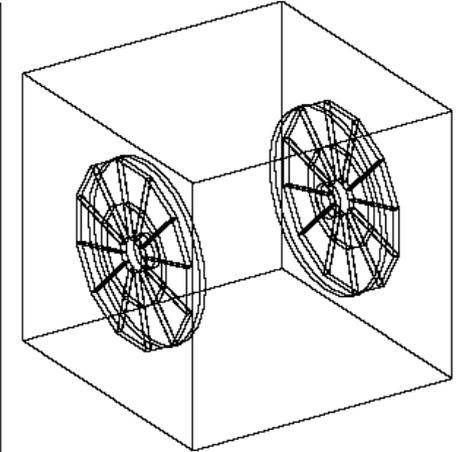
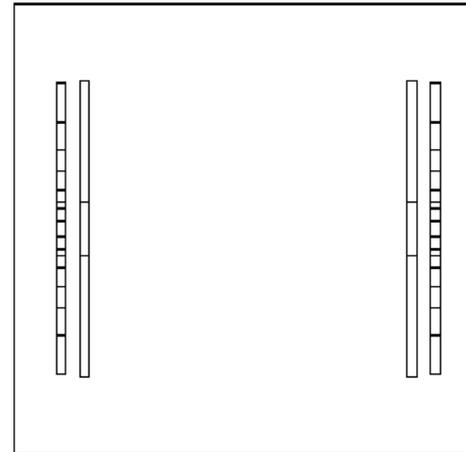
The left number show plane type.

0 =direct plane, 1 =elliptic plane.

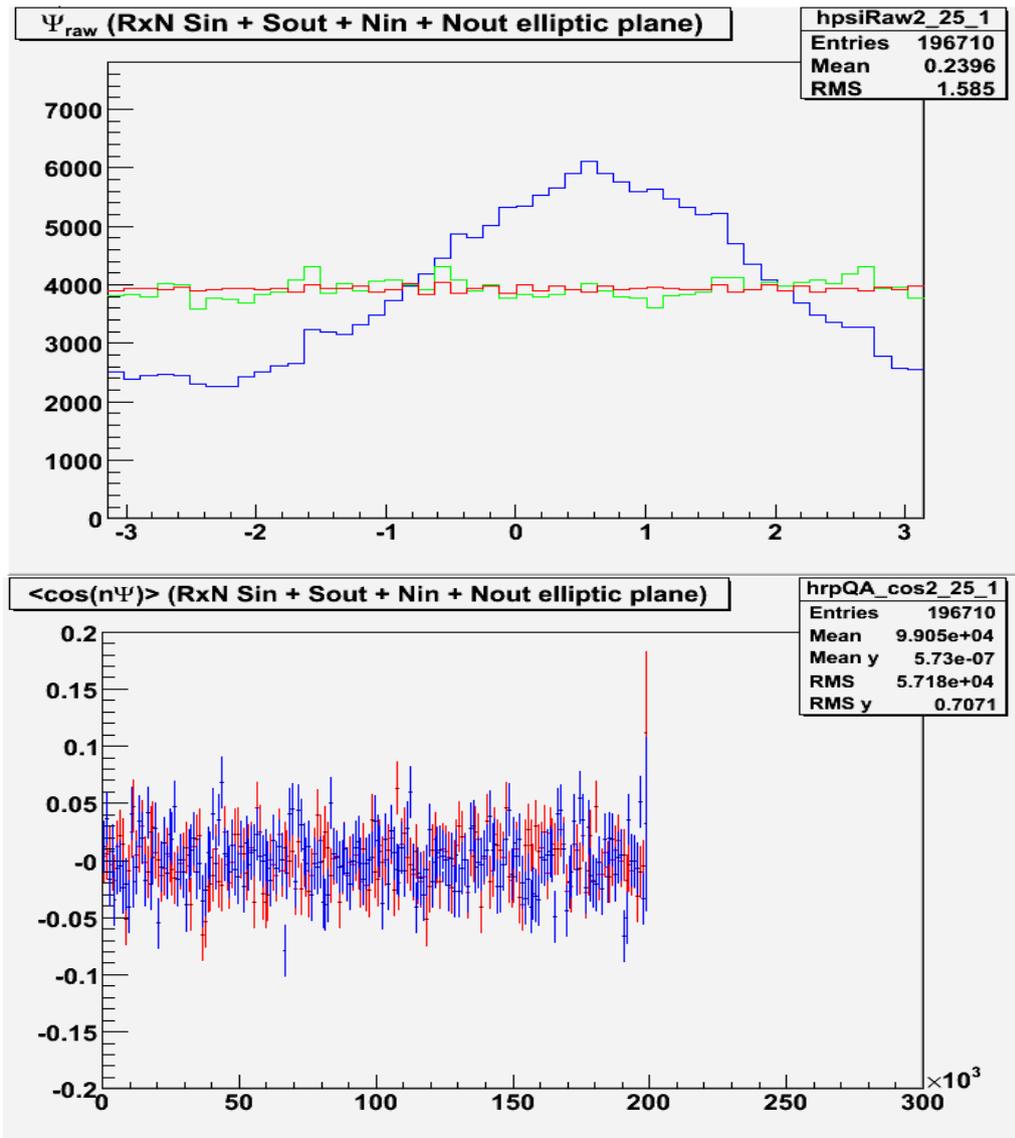
The right number shows segment or subsystem  
on detector.

# RxNP segment

- 0 : south inner ring
- 1 : south outer ring
- 2 : south ring (in+out)
- 3 : north inner ring
- 4 : north outer ring
- 5 : north ring (in+out)
- 6 : inner ring (south+north)
- 7 : outer ring (south+north)
- 8 : full



# Check for RP calibration



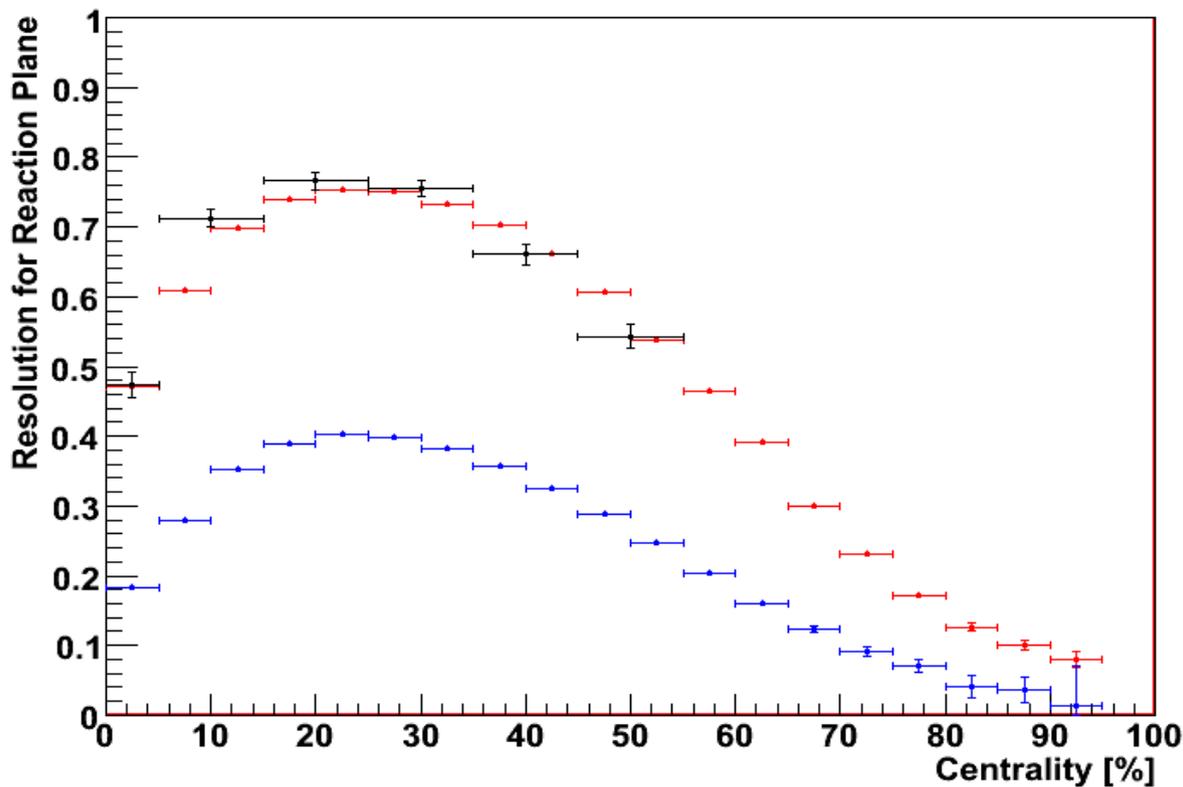
- Top picture shows reaction plane distribution. Red line is the plane after two step calibration.
- Bottom figure shows average cos or sin value of the plane after calibration. They should be flat around 0.
- 795 runs were calibrated well.

[https://www.phenix.bnl.gov/WWW/p/draft/ike/rpcalib/pro76\\_CNT\\_check.html](https://www.phenix.bnl.gov/WWW/p/draft/ike/rpcalib/pro76_CNT_check.html)

[https://www.phenix.bnl.gov/WWW/p/draft/ike/rpcalib/pro78\\_CWG\\_check.html](https://www.phenix.bnl.gov/WWW/p/draft/ike/rpcalib/pro78_CWG_check.html)

# resolution

Red: RxNP, Blue: BBC, Black: Simulation RxNP



- Red: RxNP(data)
- Black: GEANT4 simulation for RxNP
- Blue: BBC(data)
- The resolution of RxNP is consistent with the expected resolution by simulation.

# Summary and to do

- RP calibration was done for 795 runs.
  - The calibration coefficients were already uploaded to Date Base of RCF.
  - Good runlist: <https://www.phenix.bnl.gov/WWW/p/draft/ike/rpcalib/goodrun.txt>
- Final calibration will be accomplished after full production with new centrality.
  - RP calibration will be done for all segments of DST files.