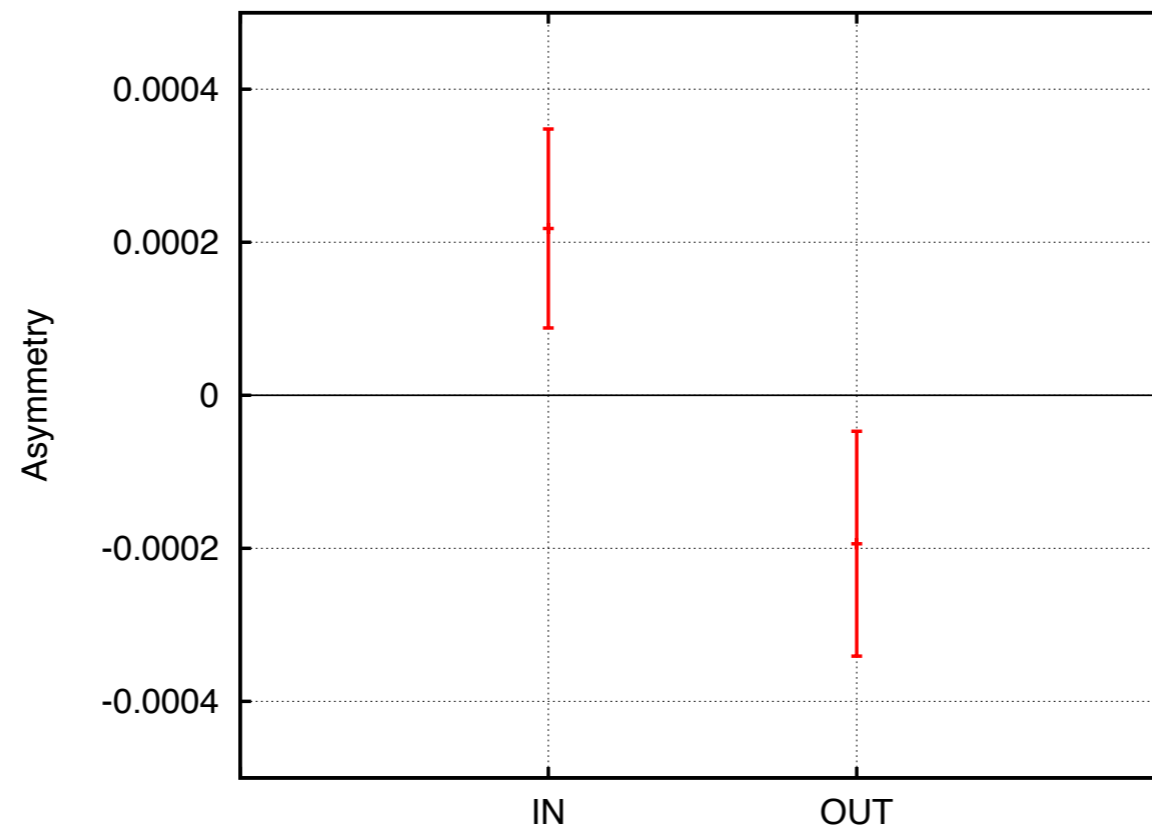


3rd Arm and Helicity Status Update

Chao Gu

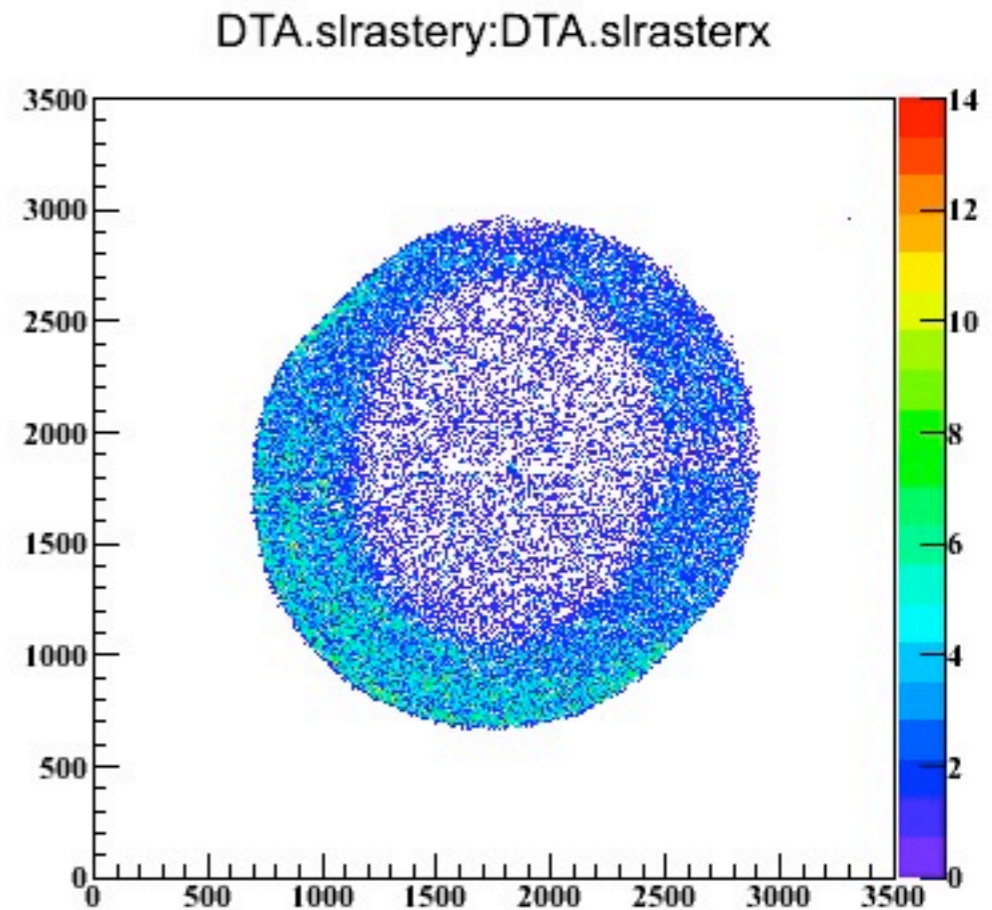
3rd Arm Status

- Only work for g2p configuration
- Cosmic ray calibration took at 2.5T transverse
- ~200 million events for each energy setting
- Several runs are diluted



3rd Arm Status

- Also work as a beam position monitor
- Insert slow raster signal to 3rd arm during the 2.254GeV, 2.5T running
- Can see hot spot when beam hit beam pipe



3rd Arm Status

- **TODO: offline analysis to select good event and generate asymmetry**

Helicity Status

- All of the work was done during the December commission
- Calibrate with Moller DAQ and Hall C result
- We see physics asymmetry

Helicity Status

Large charge asymmetry test result
(Halog 363194)

IA-set	LHRS	RHRS	3rd	Moller	Hall C
0	-0.91%	-0.91%	-0.92%	-0.92%	-0.91%
15000	-0.56%	-0.56%	-0.56%	-0.56%	-0.56%
31000	-0.092%	-0.095%	-0.092%	-0.090%	-0.094%

Helicity Status

- Several issues with helicity related signal (BCM, Trigger & Time) we already knew:
 - Halog 366691: trigger mapping problem, fixed at 03/16, before g2p actually start.
 - Halog 367191: scaler channel to read fast clock in LHRS is bad, fixed at 03/20, runs took before septa burning were influenced
 - Halog 368048: left arm upstream BCM NIM to BNC convertor is broken, fixed at 04/03, LRHS runs took from 03/26 to 04/03 were influenced
 - Halog 371459: scaler channel to read BCM signal in RHRS is broken, fixed at 04/09, RHRS runs took from 04/03 to 04/09 were influenced

Helicity Status

- TODO: backward predict
- TODO: BCM information to event by event
- Any other improvement I can imagine