

Status of RHICf Monitoring System

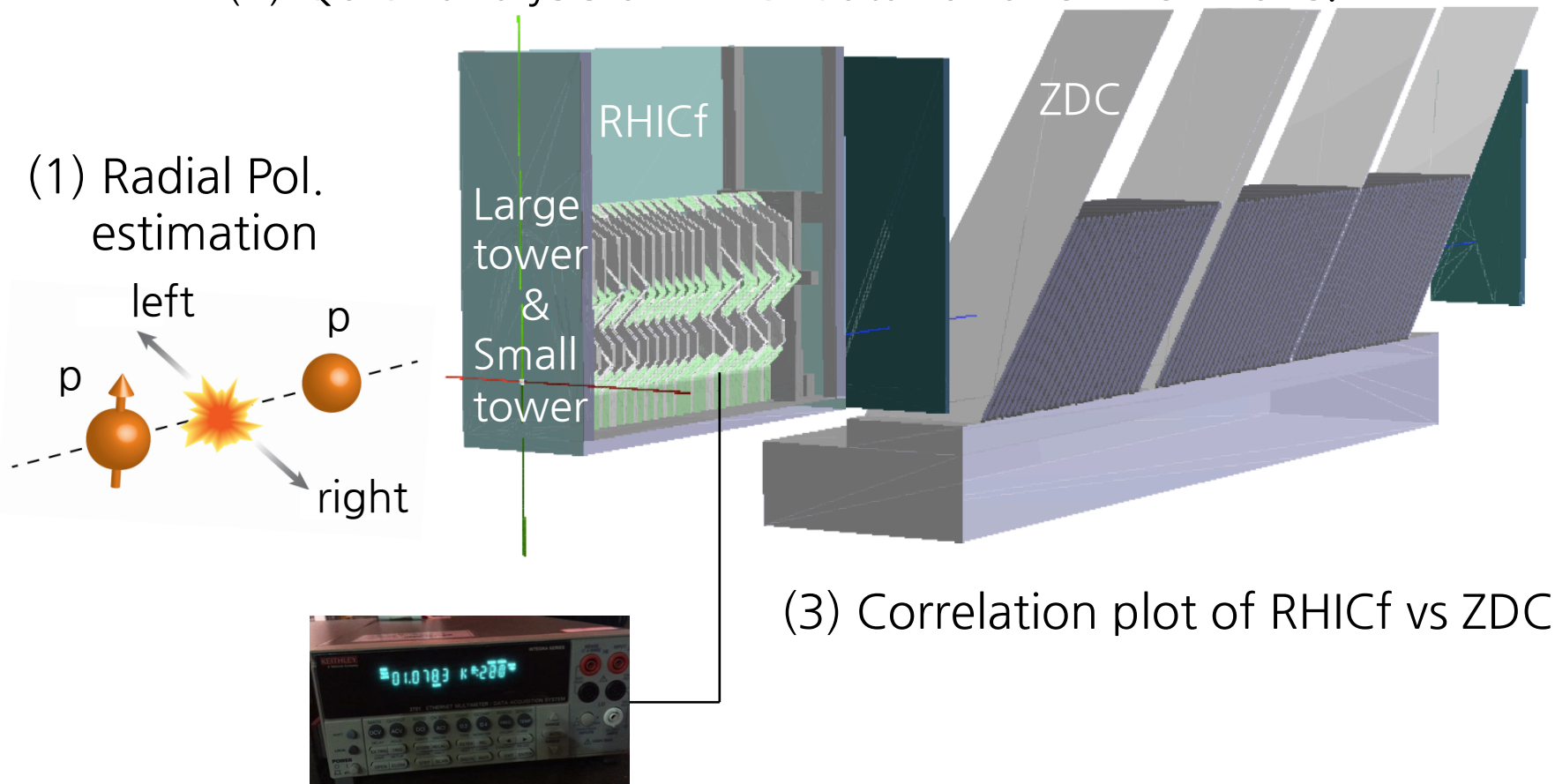
170404, Junsang Park

Minho Kim

RHICf Monitoring System

(2) Real time monitoring of RHICf detector.

(3) Quick analysis of RHICf data for one ~ few runs.



(3) Correlation plot of RHICf vs ZDC

(4) Resistance measurement.

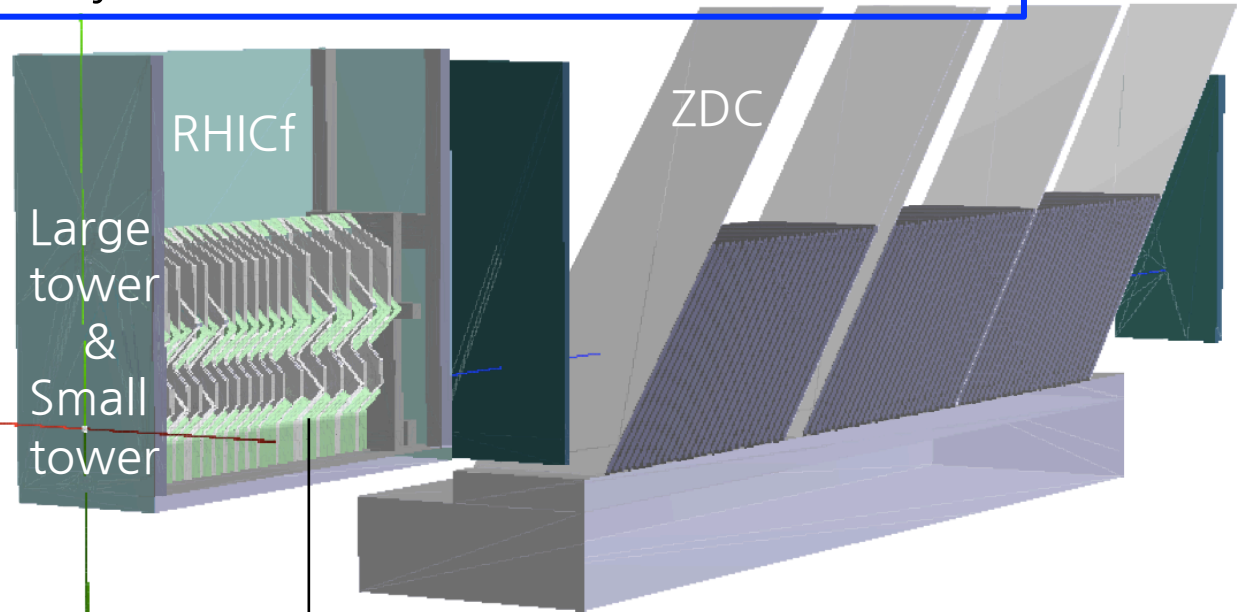
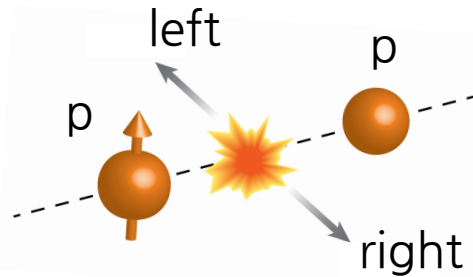
Control of HV module for MAPMT

RHICf Monitoring System

(2) Real time monitoring of RHICf detector. (By event display)

(3) Quick analysis of RHICf data for one ~ few runs.

(1) Radial Pol. estimation



(3) Correlation plot of RHICf vs ZDC

: Will be shown in online page, online.star.bnl.gov/rhicf2017/

(4) Resistance measurement. (By a GUI)

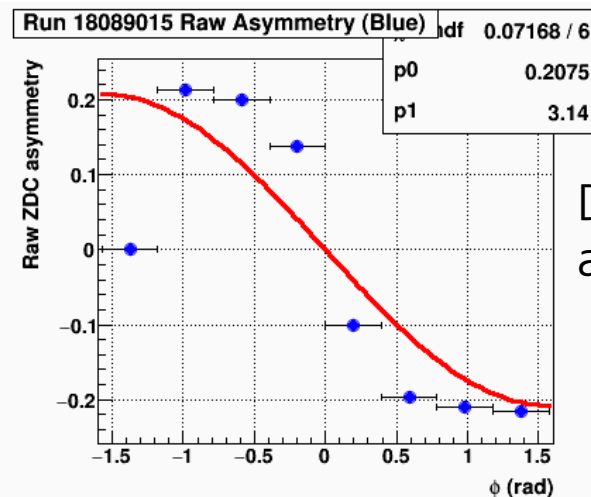
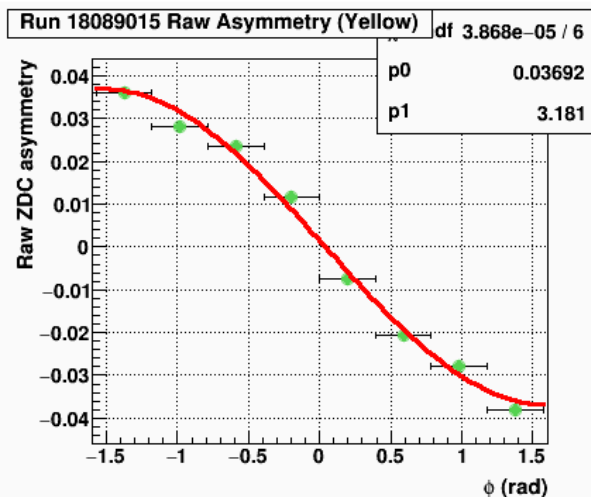
HV control and monitor for MAPMT HV module

[Quick analysis](#)

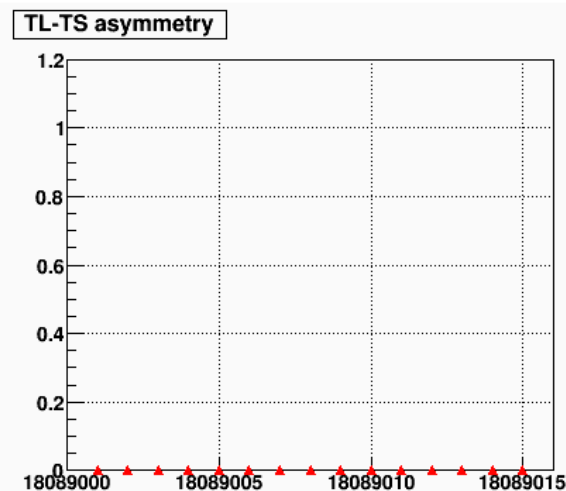
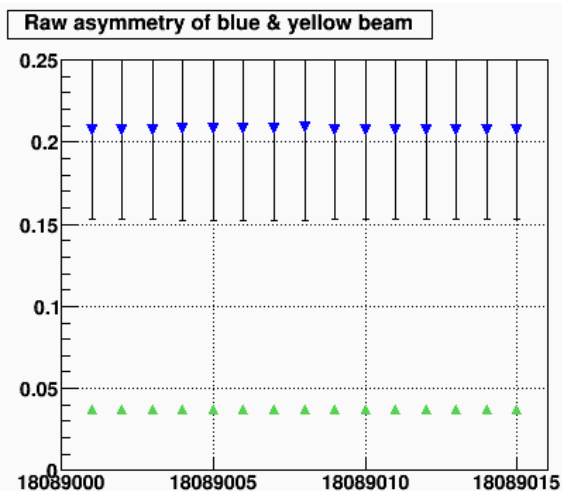
[Correlation](#)

[Contact](#)

Online scaler plot for RUN: STAR run number



Detailed raw asymmetry

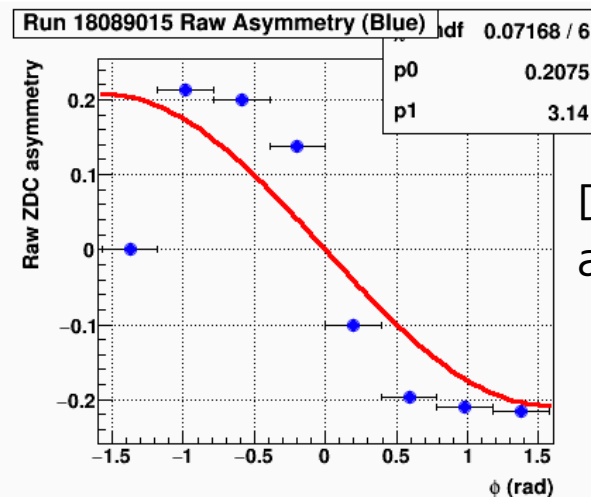
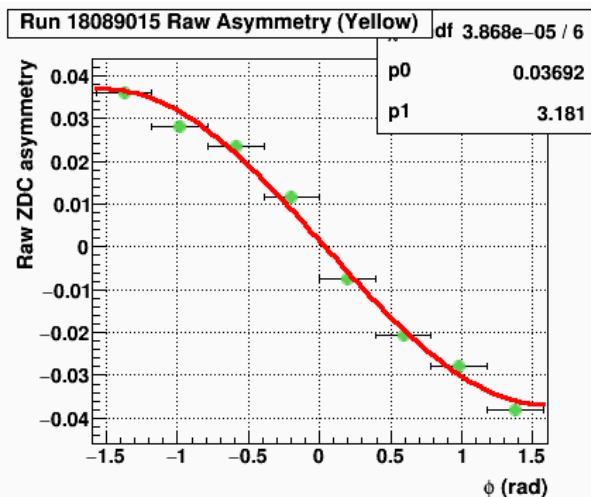


[Quick analysis](#)

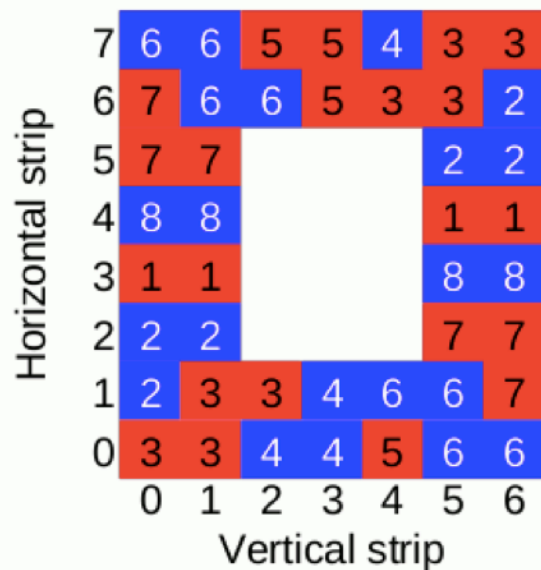
[Correlation](#)

[Contact](#)

Online scaler plot for RUN: STAR run number



Detailed raw asymmetry



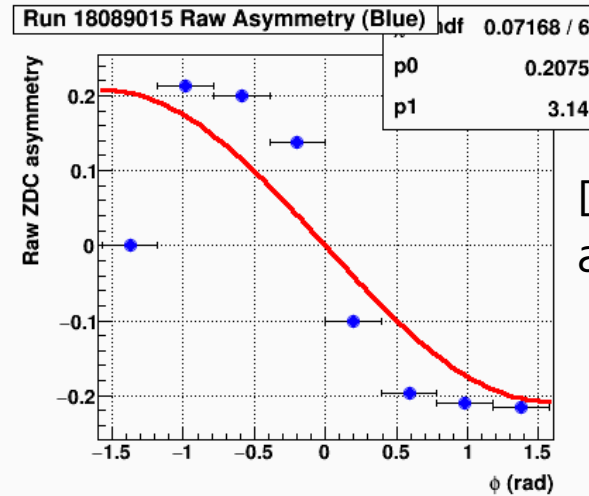
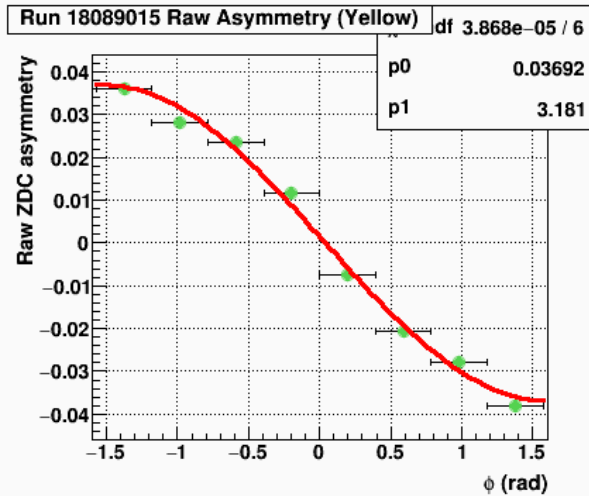
Polarization up



down

- Quick analysis
- Correlation
- Contact

Online scaler plot for RUN: STAR run number



Detailed raw asymmetry

Counts correspond with Hank's mail. Bunch crossing is OK.

On 2017/03/06 1:02, Hank Crawford wrote:

Hi Yuji and Kenta -

#SCA2_BITHIST: opened file /scratch/scalerdata/scaler.run18063049.bd05.hist.dat

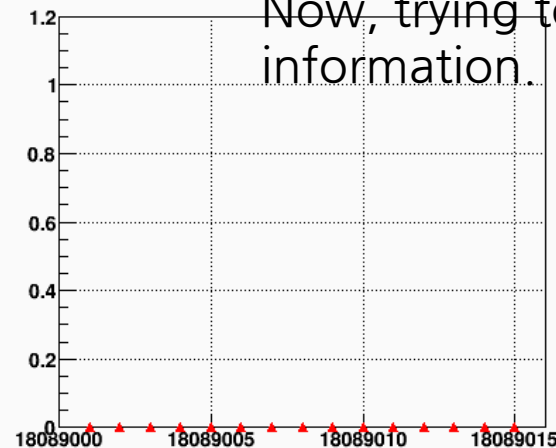
#	bit	chns	w/ hits	w/o	counts	freq	/norm
20	5411	3014744	30599	174.708315	30599.0000000		
21	1544	3018611	4526	25.841689	4526.0000000		
22	1552	3018603	4364	24.916732	4364.0000000		
23	0	3020155	0	0.000000	0.0000000		

#SCA2_BITHIST: opened file /scratch/scalerdata/scaler.run18063054.bd05.hist.dat

#	bit	chns	w/ hits	w/o	counts	freq	/norm
20	0	5050033	0	0.000000	0.0000000		
21	570	5049463	882	26.084154	0.0000174		
22	533	5049500	847	25.049068	0.0000167		
23	0	5050033	0	0.000000	0.0000000		

Run18062067 was saved with 0 counts - not sure why - thanks -hank

TL-TS asymmetry



Now, trying to get spin information.

Quick Analysis

Raw ADC

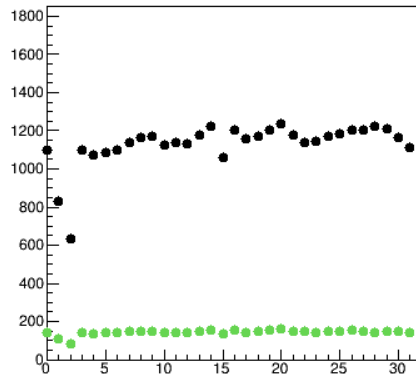
Delayed GATE

Subtracted ADC

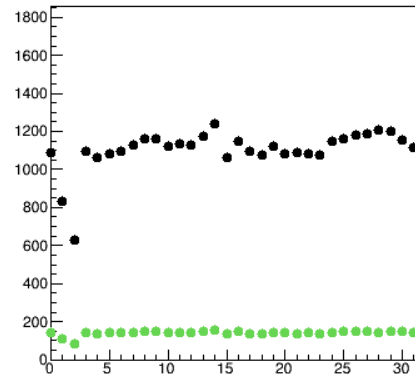
Quick analysis plot for RUN:

RHICf run number

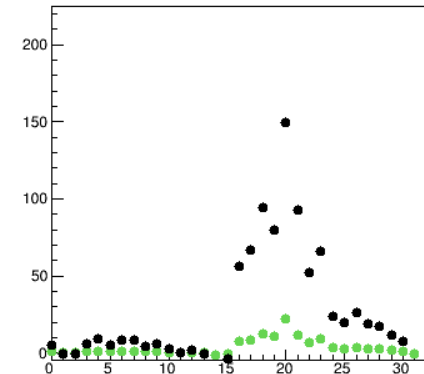
GSO plate ADC mean



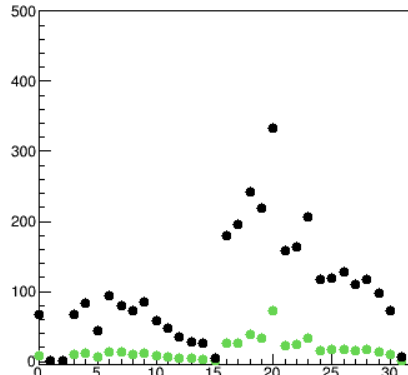
GSO plate delayed GATE mean



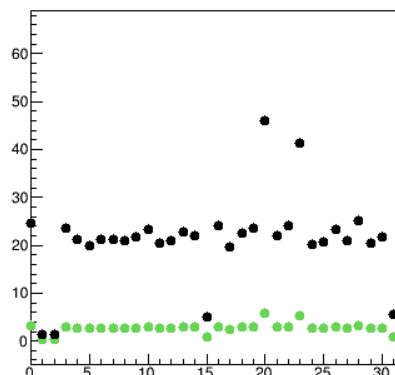
ADC - delayed GATE mean



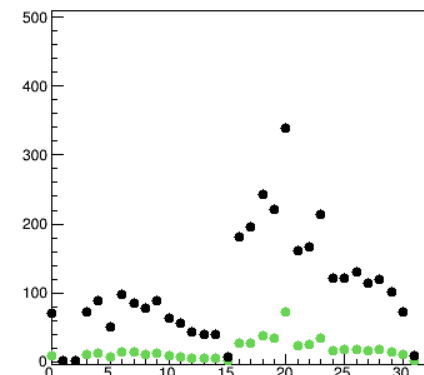
GSO plate ADC rms



GSO plate delayed GATE rms



ADC - delayed GATE rms



- Script for automatic process (raw root file → root file of LHCf library → analysis plot → sending to online) will be prepared soon.

Quick Analysis

Raw ADC

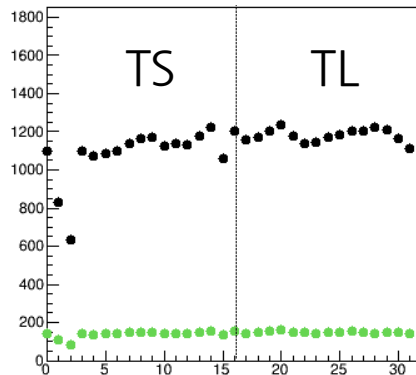
Delayed GATE

Subtracted ADC

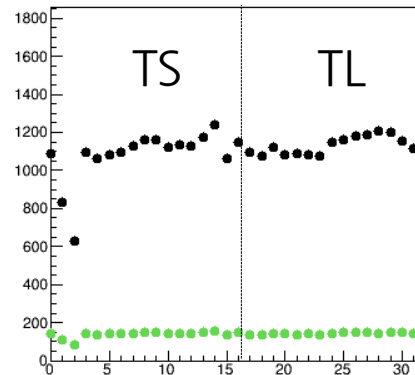
Quick analysis plot for RUN: 1226

RHICf run number

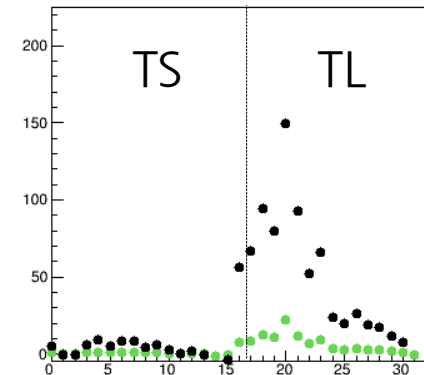
GSO plate ADC mean



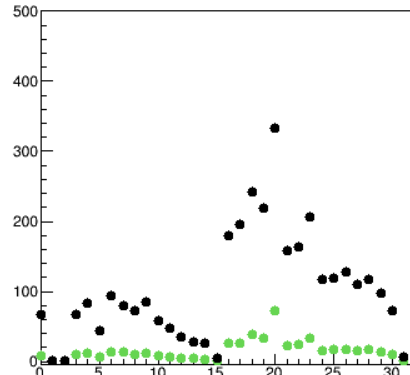
GSO plate delayed GATE mean



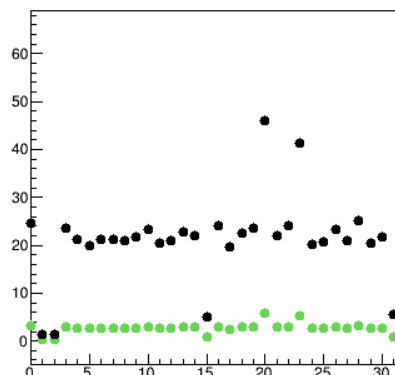
ADC - delayed GATE mean



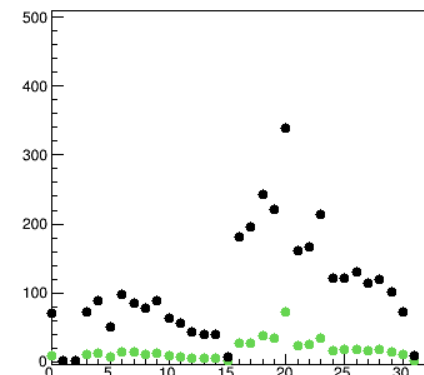
GSO plate ADC rms



GSO plate delayed GATE rms



ADC - delayed GATE rms



- Script for automatic process (raw root file → root file of LHCf library → analysis plot → sending to online) will be prepared soon.

KEITHLEY GUI

MAPMT Resistance

HV Set HV set < 900 V

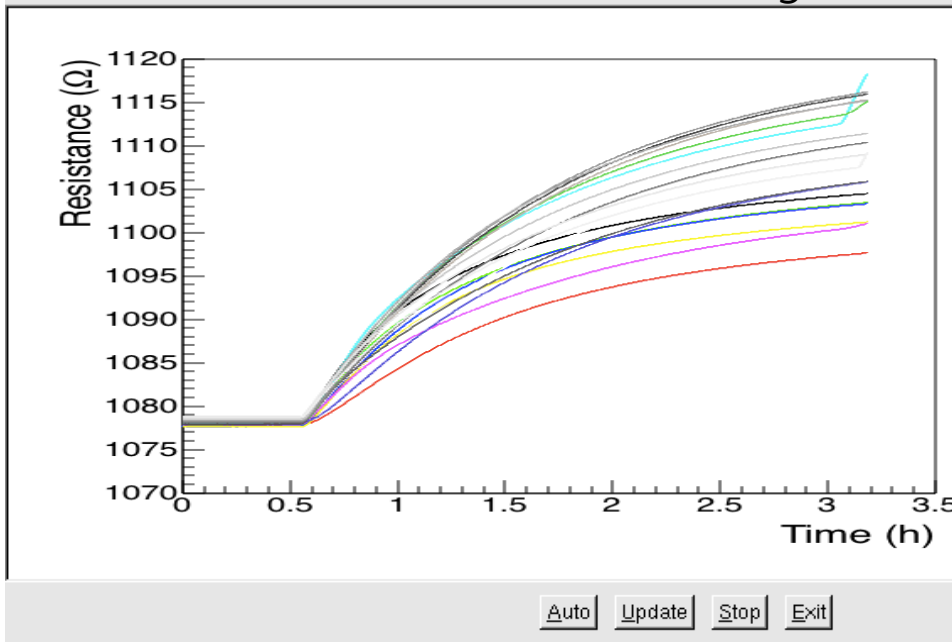
Measured	Actual
Voltage 0.00 V	0 V
Current 0.00 V	0.00 mA

* RHICf experiment with $\sqrt{s}=510$ GeV polarized p+p collisions at STAR
* Contact: M.H.Kim

Channel	Value	Channel	Value
CH 1	96	CH 11	1148
CH 2	1143	CH 12	1161
CH 3	1145	CH 13	1161
CH 4	1147	CH 14	1141
CH 5	1139	CH 15	1148
CH 6	1133	CH 16	1159
CH 7	1130	CH 17	1157
CH 8	1154	CH 18	1148
CH 9	1158	CH 19	1143
CH 10	1147	CH 20	1143

V & I monitoring of HV module

Resistance measurement of each channels



Canvas will be updated right after we go to BNL again.

GUI is working with keithley object: There is some “make” problem.

All information will be saved as TTree format as well.

TO DO List

- Online monitor
 - Get spin information of TL and TS.
 - Detailed counts information of TL and TS.
 - Correlation plot: Start discussing with Ueno
- KEITHLEY
 - Solve make problem.
 - Canvas update.

>> Due to 4/16 or at least by 23

Event Display

- Current Status

- It has been compiled and run successfully.
- It has unnecessary variables and plots yet.
- Not optimized to RHICf yet.
- Hard to test...

- To Do

- Optimized to RHICf (Change the name of flags, update pedestal value table, ...)

>> by April

One More Plan on Quick A_N Check?

- We can't get much information from only TL-TS asymmetry.
- Once a spin pattern is fixed, it is not frequently changed.
- Because we can get the STAR-side information, when it comes to a trigger-fired data, we can get corresponding STAR event number.

quickly reconstructed position + taken spin information

→ quick polarization analysis is possible?

O