

Group meeting

September 6th, 2024



Instruction responsibilities

- Classes for Fall 2024:
 - PHY 331:
 - 1 lecture
 - Need to grade homework
 - PHY 361:
 - 1 lecture
 - Need to graded homework
- Met with Princess Colin to discuss individualized instruction project (quantum computers)

Service responsibilities

- Committee:
 - GlueX Compton Analysis Review Committee:
 - Have author response
 - Reviewed the response
 - **Need to make formal writeup**

Group responsibilities

- Need to build out NAS that has been collecting dust.
 - Need to order hard drives
- Need to figure out the standing of the groups finances

Timelines

2024

January							February							March							April						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
31	1	2	3	4	5	6	28	29	30	31	1	2	3	25	26	27	28	29	1	2	31	1	2	3	4	5	6
7	8	9	10	11	12	13	4	5	6	7	8	9	10	3	4	5	6	7	8	9	7	8	9	10	11	12	13
14	15	16	17	18	19	20	11	12	13	14	15	16	17	10	11	12	13	14	15	16	14	15	16	17	18	19	20
21	22	23	24	25	26	27	18	19	20	21	22	23	24	17	18	19	20	21	22	23	21	22	23	24	25	26	27
28	29	30	31	1	2	3	25	26	27	28	29	1	2	31	1	2	3	4	5	6	28	29	30	1	2	3	4
May							June							July							August						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
28	29	30	1	2	3	4	26	27	28	29	30	31	1	30	1	2	3	4	5	6	28	29	30	31	1	2	3
5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10
12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17
19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24
26	27	28	29	30	31	1	23	24	25	26	27	28	29	28	29	30	31	1	2	3	25	26	27	28	29	30	31
30	1	2	3	4	5	6	30	1	2	3	4	5	6	28	29	30	31	1	2	3	25	26	27	28	29	30	31
September							October							November							December						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	29	30	1	2	3	4	5	27	28	29	30	31	1	2	1	2	3	4	5	6	7
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28
29	30	1	2	3	4	5	27	28	29	30	31	1	2	24	25	26	27	28	29	30	29	30	31	1	2	3	4

Alan teaches today

Collab Mtg

Registration DNP

Classes start



2025

January							February							March							April						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
29	30	31	1	2	3	4	26	27	28	29	30	31	1	23	24	25	26	27	28	1	30	31	1	2	3	4	5
5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8	6	7	8	9	10	11	12
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15	13	14	15	16	17	18	19
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22	20	21	22	23	24	25	26
26	27	28	29	30	31	1	23	24	25	26	27	28	1	23	24	25	26	27	28	29	27	28	29	30	1	2	3
														+ format review deadline?													
May							June							July							August						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
27	28	29	30	1	2	3	1	2	3	4	5	6	7	29	30	1	2	3	4	5	27	28	29	30	31	1	2
4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23
25	26	27	28	29	30	31	29	30	1	2	3	4	5	27	28	29	30	31	1	2	24	25	26	27	28	29	30
September							October							November							December						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
31	1	2	3	4	5	6	28	29	30	1	2	3	4	26	27	28	29	30	31	1	30	1	2	3	4	5	6
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27
28	29	30	1	2	3	4	26	27	28	29	30	31	1	23	24	25	26	27	28	29	28	29	30	31	1	2	3



$\Xi^* \rightarrow \Xi\pi^0$ update

- Finally have 2018-01 files for reaction with K^+ switched with π^+
 - Need to run CL comparison between the reactions

$KK\pi$ update

- Downloading 2018-01 files for reaction with K^+ switched with π^+ and for K^- switched with π^-
- Have about 1/3 of the files

KK π update

The screenshot shows a cloud management interface with a sidebar on the left containing icons for FILE MANAGER, ACTIVITY, COLLECTIONS, GROUPS, CONSOLE, FLOWS, COMPUTE, SETTINGS, LOGOUT, and HELP & SITEMAP. The main content area displays a task titled 'jlab#gw2 to asu_lc7' with a 'transfer started' progress bar. Below the task title are two tabs: 'Overview' (selected) and 'Event Log'. The 'Overview' tab shows the following details:

- Task Label: jlab#gw2 to asu_lc7
- Source: jlab#gw2
- Destination: asu_lc7
- Task ID: d5aa5c5c-6ac0-11ef-b4a3-8fef73a45f39
- Owner: Michael Dugger (dugger@asu.edu)
- Condition: ACTIVE
- Requested: 9/4/2024, 06:23 AM
- Deadline: 9/9/2024, 08:01 AM
- Duration: 2 days 2 hours 7 minutes 46 seconds
- Base Paths: Source: /expphy/cache/halld/RunPeriod-2018-01/analysis/ver24/; Destination: /raptortmp/globus/RunPeriod-2018-01/
- Transfer Settings: verify file integrity after transfer, transfer is not encrypted, overwriting all files on destination

On the right side, there are three buttons: 'Edit Label', 'Terminate Task', and a statistics panel. The statistics panel shows:

- 1,084 Files
- 4 Directories
- 203 Files Transferred
- 4.30 TB Bytes Transferred
- 23.84 MB/s Effective Speed
- 0 Skipped files on sync
- 0 Skipped files on error

At the bottom right of the statistics panel is a link: 'View debug data'.



$KK\pi$ update

Comparison with Sasha Ostrovidov

$KK\pi$ update

Comparison with Sasha Ostrovidov

$KK\pi$ update

Comparison with Sasha Ostrovidov

Cuts

- Initially, all cut variables are = 0
- Tried to mimic most of the cuts in the code shared with me
- Cuts that I use will be **circled in red** on the next two slides except confidence level cut that is always in place
 - Confidence level required to always be $> 10^{-4}$



Cuts: part 1

```
// vertex : Beam
double locBeamVertexZ = locBeamX4_Measured.Z();
double locBeamVertexR = locBeamX4_Measured.Perp();
if ((locBeamVertexZ < 51.0) || (locBeamVertexZ > 79.0) || (locBeamVertexR > 1.0)) cutV=1;
// vertex : Proton
double locProtonVertexZ = locProtonX4_Measured.Z();
double locProtonVertexR = locProtonX4_Measured.Perp();
if ((locProtonVertexZ < 51.0) || (locProtonVertexZ > 79.0) || (locProtonVertexR > 1.0)) cutVp=1;
// vertex : KPlus
double locKPlusVertexZ = locKPlusX4_Measured.Z();
double locKPlusVertexR = locKPlusX4_Measured.Perp();
if ((locKPlusVertexZ < 51.0) || (locKPlusVertexZ > 79.0) || (locKPlusVertexR > 1.0)) cutVkp = 1;
// vertex : KMinus
double locKMinusVertexZ = locKMinusX4_Measured.Z();
double locKMinusVertexR = locKMinusX4_Measured.Perp();
if ((locKMinusVertexZ < 51.0) || (locKMinusVertexZ > 79.0) || (locKMinusVertexR > 1.0)) cutVkm = 1;
// vertex : Photons
double locPhoton1VertexZ = locPhoton1X4_Measured.Z();
double locPhoton1VertexR = locPhoton1X4_Measured.Perp();
if ((locPhoton1VertexZ < 51.0) || (locPhoton1VertexZ > 79.0) || (locPhoton1VertexR > 1.0)) cutVpho1 = 1;
double locPhoton2VertexZ = locPhoton2X4_Measured.Z();
double locPhoton2VertexR = locPhoton2X4_Measured.Perp();
if ((locPhoton2VertexZ < 51.0) || (locPhoton2VertexZ > 79.0) || (locPhoton2VertexR > 1.0)) cutVpho2 = 1;
if (cutV == 1 || cutVp == 1 || cutVkp == 1 || cutVkm == 1 || cutVpho1 == 1 || cutVpho2 == 1, cutVal1 = 1;

/***** Unused Energy Cut *****/
if ( dComboWrapper->Get_Energy_UnusedShowers() > 0.05 , cutUnE = 1;
```



Cuts: part 2

```
// theta
if ( (((locPhoton1P4_Measured.Theta()*180./TMath::Pi() < 12.0) && (locPhoton1P4_Measured.P() < 0.5)) ||
      ((locPhoton2P4_Measured.Theta()*180./TMath::Pi() < 12.0) && (locPhoton2P4_Measured.P() < 0.5))) cutTheta = 1;

//Mkk
if ((locKPlusP4_Measured+locKMinusP4_Measured).M() > 1.055) cutMkk = 1;
if ( (dKPlusWrapper->Get_Detector_System_Timing() != SYS_TOF) || (dKMinusWrapper->Get_Detector_System_Timing() != SYS_TOF) ) cutTOF = 1;

/***** DeltaT TOF *****/
// deltaT TOF : KPlus
double locKPlusP = locKPlusP4_Measured.P();
double locPropagatedRFTIME_Kp = dComboWrapper->Get_RFTIME_Measured() + (locKPlusX4_Measured.Z() - dComboWrapper->Get_TargetCenter().Z())/29.9792458;
double locKPlusDeltaT = locKPlusX4_Measured.T() - locPropagatedRFTIME_Kp;
double locKPlusBeta_K = locKPlusP / sqrt(ParticleMass(KPlus)*ParticleMass(KPlus) + locKPlusP*locKPlusP);
double locPiPlusBeta_K = locKPlusP / sqrt(ParticleMass(PiPlus)*ParticleMass(PiPlus) + locKPlusP*locKPlusP);
// deltaT TOF : KMinus
double locKMinusP = locKMinusP4_Measured.P();
double locPropagatedRFTIME_Km = dComboWrapper->Get_RFTIME_Measured() + (locKMinusX4_Measured.Z() - dComboWrapper->Get_TargetCenter().Z())/29.9792458;
double locKMinusDeltaT = locKMinusX4_Measured.T() - locPropagatedRFTIME_Km;
double locKMinusBeta_K = locKMinusP / sqrt(ParticleMass(KMinus)*ParticleMass(KMinus) + locKMinusP*locKMinusP);
double locPiMinusBeta_K = locKMinusP / sqrt(ParticleMass(PiMinus)*ParticleMass(PiMinus) + locKMinusP*locKMinusP);

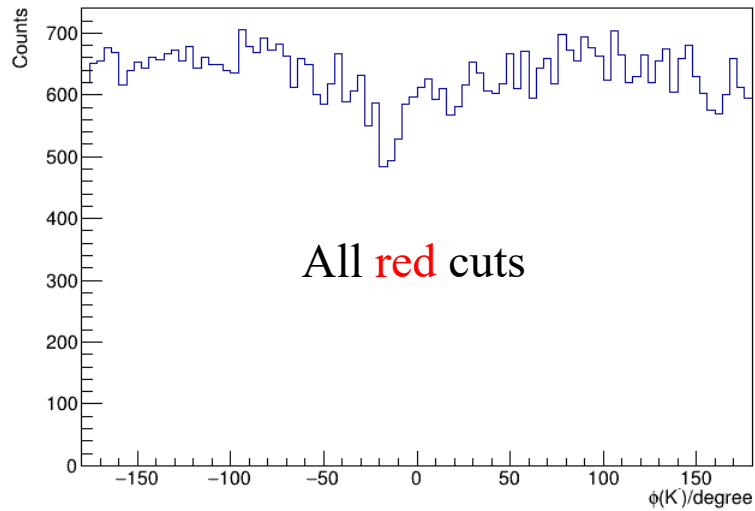
// Strangeness Conservation Cut
if ( (dKPlusWrapper->Get_Detector_System_Timing() == SYS_TOF) &&
      (locKPlusDeltaT < (5.42485/0.3)*(1./locPiPlusBeta_K-1./locKPlusBeta_K) + 0.2) &&
      (dKMinusWrapper->Get_Detector_System_Timing() == SYS_TOF) &&
      (locKMinusDeltaT < (5.42485/0.3)*(1./locPiMinusBeta_K-1./locKMinusBeta_K) + 0.2) ) cutStrange = 1;

//MM
if ( fabs(locMissingP4_Measured.M2()) > 0.02 ) cutMM = 1;

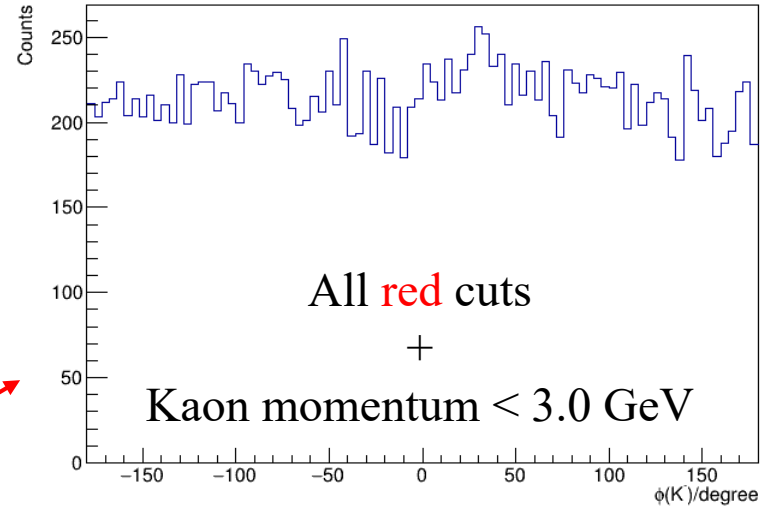
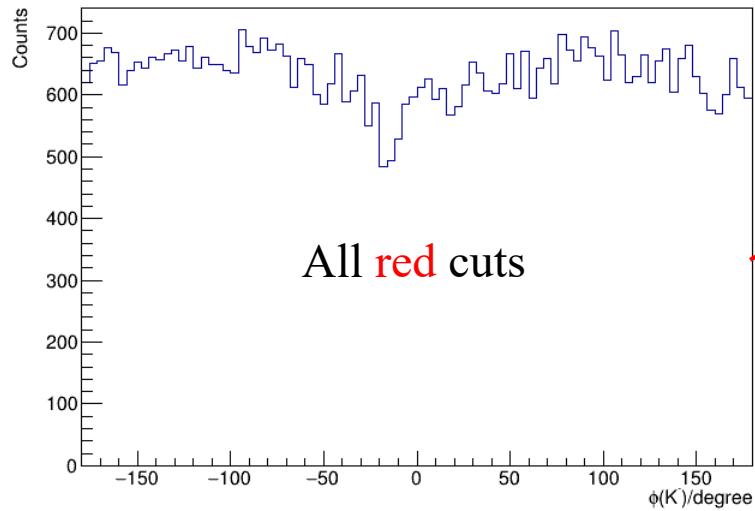
/***** Momentum Cut *****/
if ( locProtonP4_Measured.P() > 2.5 ) cutMo = 1;
```



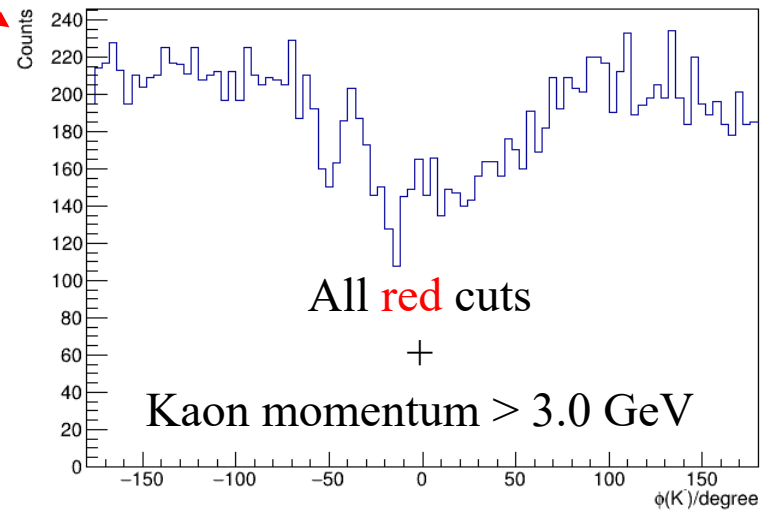
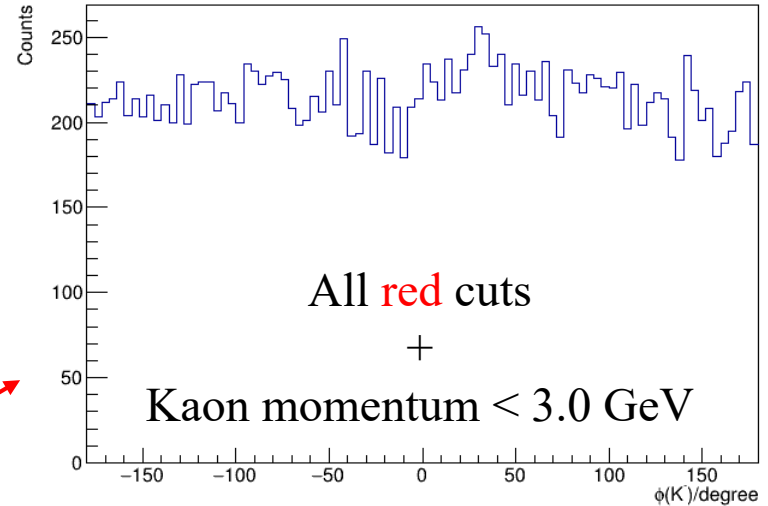
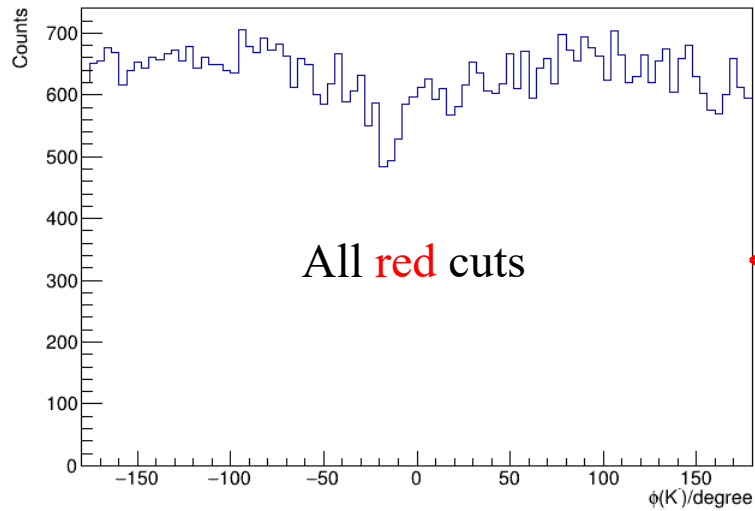
$KK\pi$ with cuts



$KK\pi$ with cuts



$KK\pi$ with cuts



Title

