Review of Cuts we have studied so far:

- Delta T for each particle species and sub detector
- Kinematic Fitter Confidence Level
- Beam Energy Cut
- Beam Bunch Cut (RF Time)
- Vertex Cuts
- P vs Theta Cut for Photons (Reduces Secondaries)
- Number of photons reconstructed in the event

- All of these have been discussed in detail in my Analysis Note

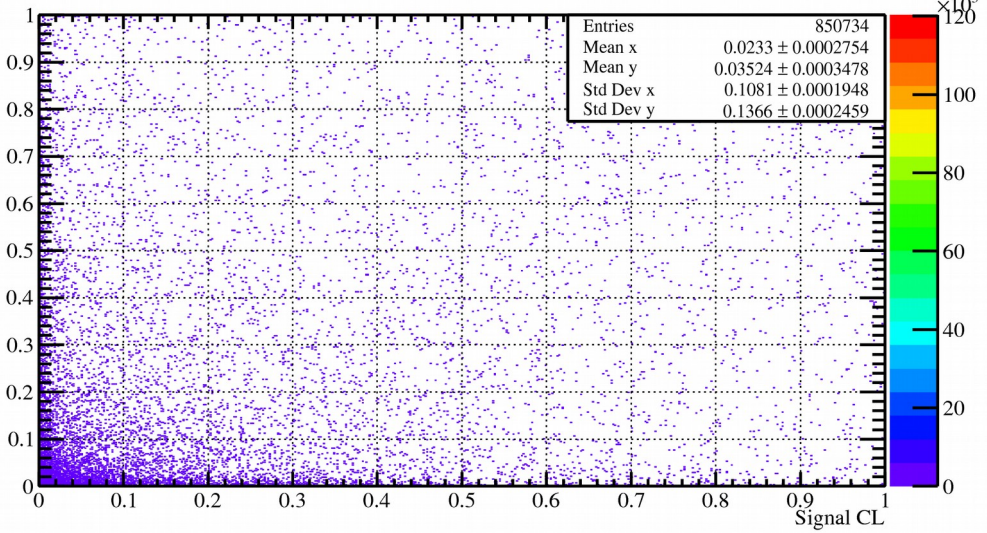
Review of Cuts we will discuss:

- How does the Barnes Cut perform in my analysis?
  - Background Confidence Level < 0.1
  - Signal Confidence Level > 10^-4
  - Signal Confidence Level > 10^-2
  - Confidence Level Ratio 1
  - Confidence Level Ratio 10

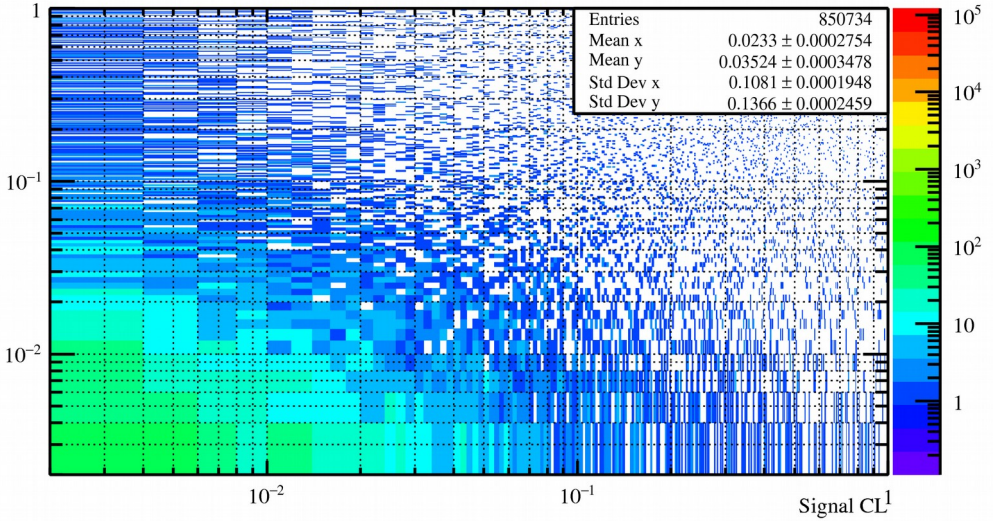
- Special Kaon cut for TOF to reduce rho background
  - Time of Flight Function shift 2 sigma
  - Time of Flight Function shift 3 sigma
  - Only Tight K+ Cut (strangeness conservation)
  - Only Tight K- Cut (strangeness conservation)
  - K+/K- Momentum < 3.0

Confidence Level Comparisons
“Before” 2 photon cut

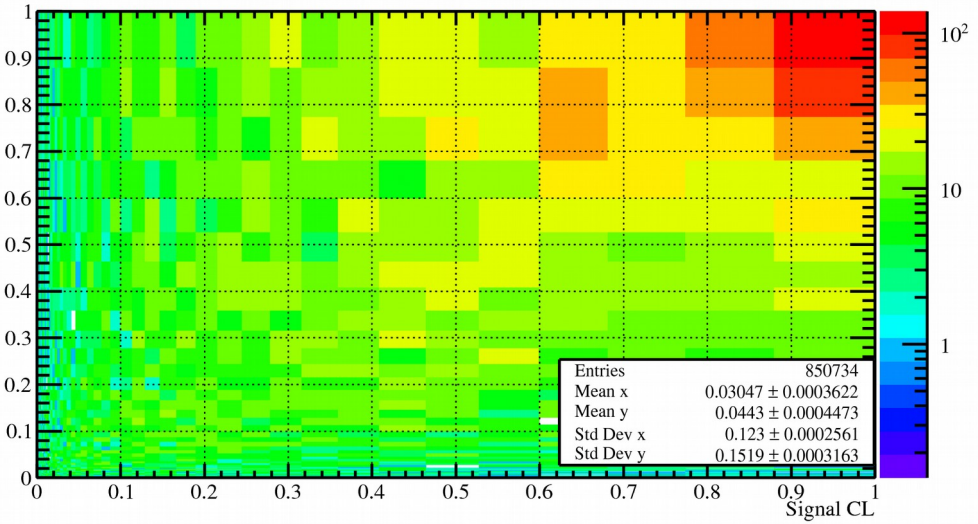
BG CL Vs Signal CL lin XY



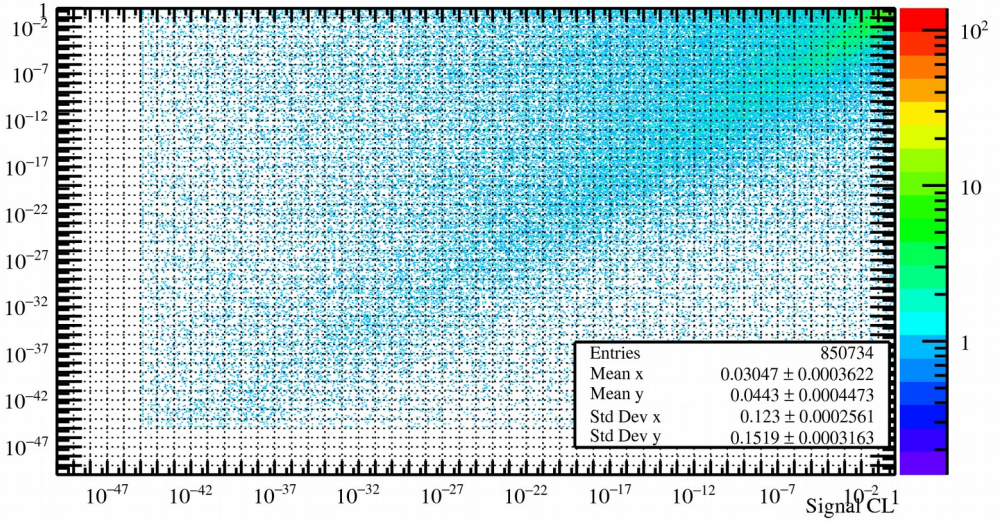
BG CL Vs Signal CL lin log XY



BG CL Vs Signal CL log XY

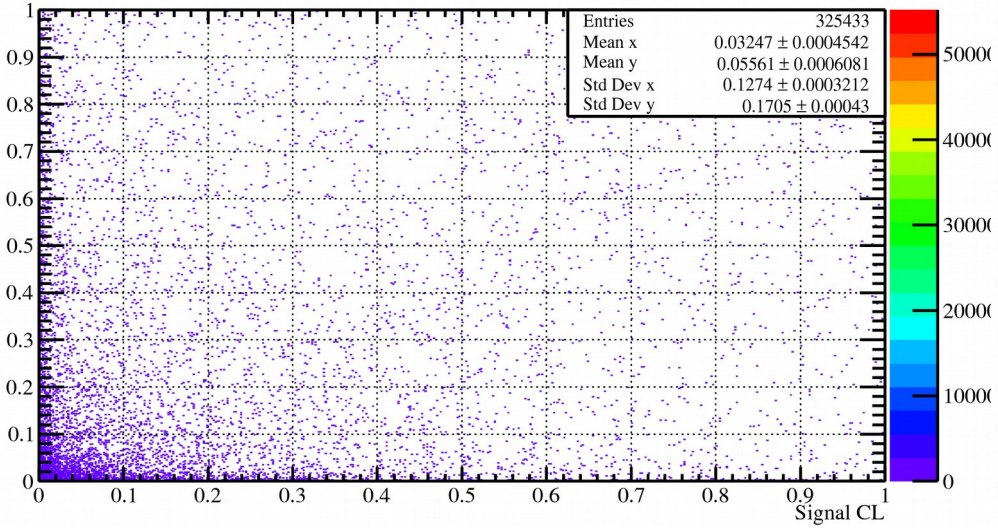


BG CL Vs Signal CL log log XY

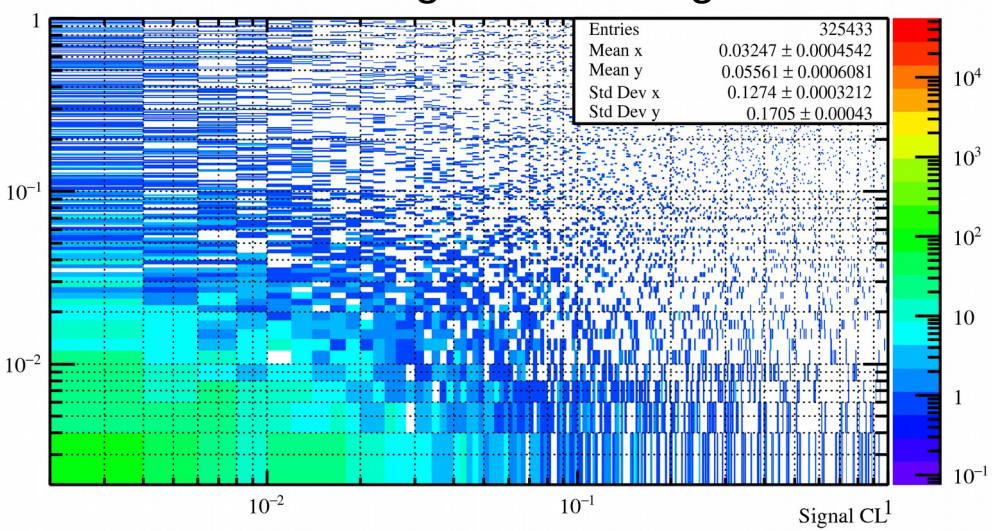


Confidence Level Comparisons “after” 2 photon cut

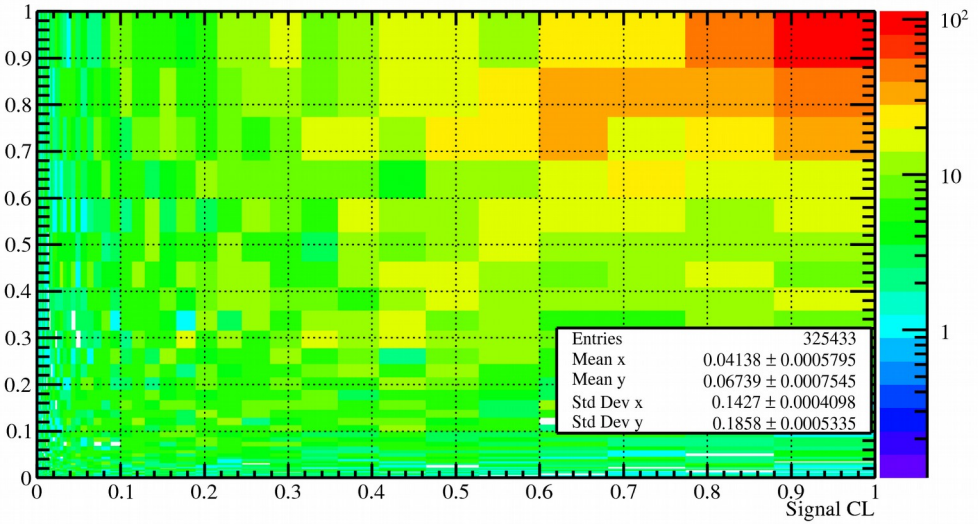
BG CL Vs Signal CL lin XY



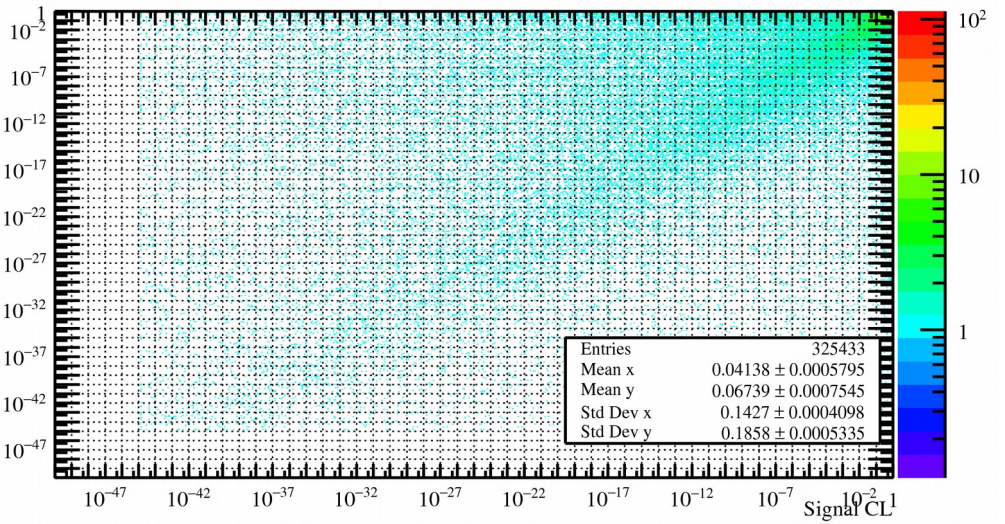
BG CL Vs Signal CL lin log XY



BG CL Vs Signal CL log XY

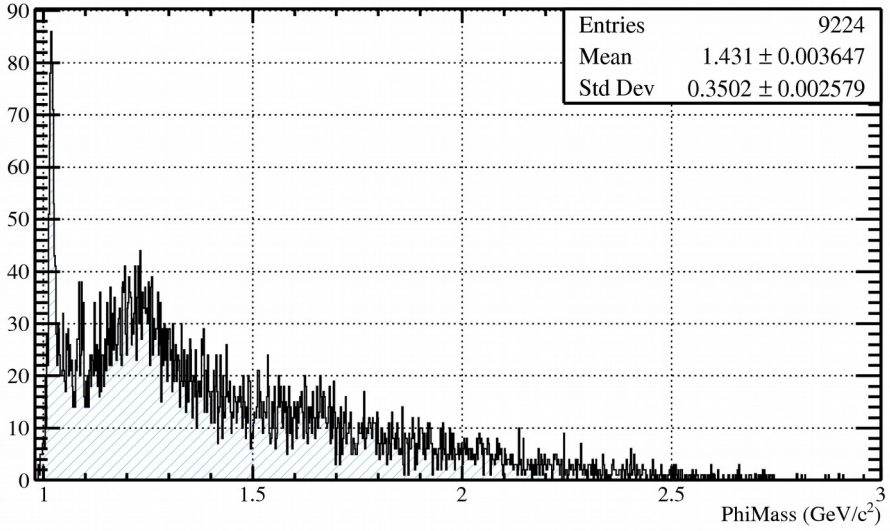


BG CL Vs Signal CL log log XY

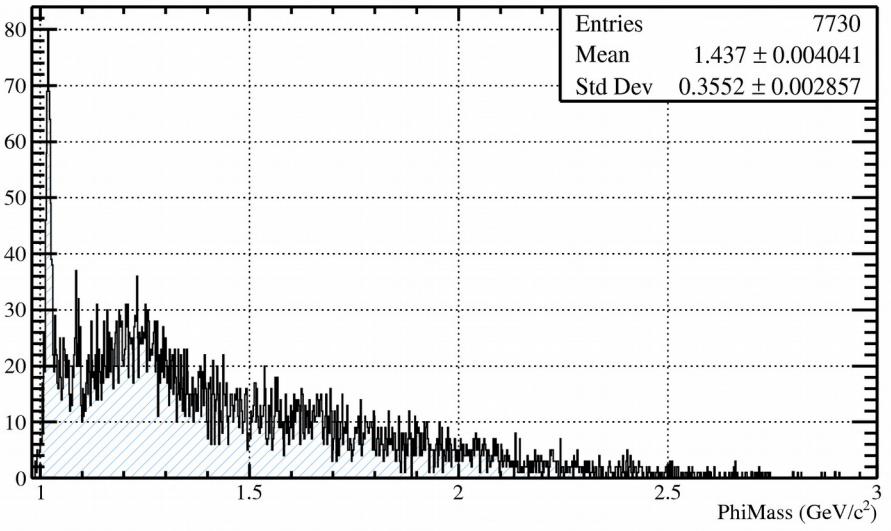


Phi CL > 10^-4; CL > 10^-4 && BG CL < 0.1

K+K- Mass CL4



K+K- Mass CL4 & BG CL



Phi Fit Results Table; Best in Column

PHI RESULTS:

Cut	Signal	Background	S/BG	TotalBG	TotalBG_Percent	Signal_Percent	Background_Percent	S/BG_Percent
test_BGCL1	574.753	777.582	0.739	14908.669	-6.6	-3.0	-6.1	3.3
test_CL4	411.708	168.472	2.444	2989.044	-81.3	-30.5	-79.7	241.5
test_CLFactor10	513.225	631.998	0.812	11928.227	-25.3	-13.4	-23.7	13.5
test_CLFactor1	558.975	660.694	0.846	12485.907	-21.8	-5.7	-20.2	18.2
test_NOCUT	592.539	828.054	0.716	15957.925	0.0	0.0	0.0	0.0
test_CL2	350.072	101.761	3.440	1807.543	-88.7	-40.9	-87.7	380.7
test_KaonP	212.659	288.713	0.737	5651.831	-64.6	-64.1	-65.1	2.9
test_KMinus2sig	439.520	399.059	1.101	8137.945	-49.0	-25.8	-51.8	53.9
test_KPlus2sig	404.552	402.492	1.005	8270.604	-48.2	-31.7	-51.4	40.5
test_TOF2sig	306.875	279.340	1.099	5304.967	-66.8	-48.2	-66.3	53.5
test_TOF3sig	167.764	204.394	0.821	4136.018	-74.1	-71.7	-75.3	14.7
test_CL4_BGCL1	374.597	144.845	2.586	2409.435	-84.9	-36.8	-82.5	261.4
test_CL4_BGCL1	374.596	144.845	2.586	2409.435	-84.9	-36.8	-82.5	261.4
test_KMinus3sig	281.171	292.869	0.960	6776.214	-57.5	-52.5	-64.6	34.2
test_KPlus3sig	261.106	289.250	0.903	6761.111	-57.6	-55.9	-65.1	26.1

Eta Fit Results Table; Best in Column

ETA RESULTS:

Cut	Signal	Background	S/BG	TotalBG	TotalBG_Percent	Signal_Percent	Background_Percent	S/BG_Percent
test_BGCL1	573.507	693.519	0.827	4232.565	-1.3	-8.9	-1.3	-7.7
test_CL4	423.579	91.586	4.625	568.145	-86.8	-32.7	-87.0	416.5
test_CLFactor10	461.153	601.110	0.767	3667.086	-14.5	-26.7	-14.5	-14.3
test_CLFactor1	503.557	624.626	0.806	3812.233	-11.1	-20.0	-11.1	-10.0
test_NOCUT	629.479	702.951	0.895	4290.397	0.0	0.0	0.0	0.0
test_CL2	338.648	60.535	5.594	377.231	-91.2	-46.2	-91.4	524.7
test_KaonP	274.026	195.676	1.400	1206.783	-71.9	-56.5	-72.2	56.4
test_KMinus2sig	464.439	301.383	1.541	1851.427	-56.8	-26.2	-57.1	72.1
test_KPlus2sig	434.646	311.540	1.395	1907.948	-55.5	-31.0	-55.7	55.8
test_TOF2sig	331.493	204.423	1.622	1260.143	-70.6	-47.3	-70.9	81.1
test_TOF3sig	207.099	135.368	1.530	839.042	-80.4	-67.1	-80.7	70.8
test_CL4_BGCL1	368.604	87.197	4.227	540.803	-87.4	-41.4	-87.6	372.1
test_CL4_BGCL1	368.604	87.197	4.227	540.803	-87.4	-41.4	-87.6	372.1
test_KMinus3sig	328.897	204.394	1.609	1256.133	-70.7	-47.8	-70.9	79.7
test_KPlus3sig	287.486	217.910	1.319	1342.065	-68.7	-54.3	-69.0	47.3

Phi Fit Results Table; Best in Column

PHI RESULTS:

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test_NOCUT	592.539	828.054	0.716	15957.925	0.0	0.0	0.0	0.0
test_KaonP	212.659	288.713	0.737	5651.831	-64.6	-64.1	-65.1	2.9
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Eta Fit Results Table; Best in Column

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test_CLFactor1	503.557	624.626	0.806	3812.233	-11.1	-20.0	-11.1	-10.0
test_NOCUT	629.479	702.951	0.895	4290.397	0.0	0.0	0.0	0.0
test_KaonP	274.026	195.676	1.400	1206.783	-71.9	-56.5	-72.2	56.4
test_KMinus2sig	464.439	301.383	1.541	1851.427	-56.8	-26.2	-57.1	72.1
test_KPlus2sig	434.646	311.540	1.395	1907.948	-55.5	-31.0	-55.7	55.8
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