BNL,USA
Weekly analysis meeting(BNL)
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1997 PNN2 Analysis.

- Copied km21, km22, kp21, pnn1or2 monitors from 8mm tapes to dlts. Ankit finished piscat and kp22 monitors. Needs to be tested whether they are readable or not.

- Finished processing about 90% 1997 Pass1 tapes. Pass3 ntuples for all the skims are sitting on /e949dsk/towb10/e787.

- Started looking at the skim5 data for the Kp2-scatter background study. Started tunning up the cuts, particularly CCDPUL cut and photon veto cuts. Examined extensively the PV cut position for End Cap without any improvement to signal to noise ratio over the 1996 cut position. Decided to leave it as it was.

- Set the lead glass cut at 1 (1996 cut was at 0). With this cut for lead glass, the combined TGPVCUT and lead glass cut rejection has gone up by a factor of 1.55 with 10% more acceptance from the leas glass cut and with 5% loss in acceptance from the TGPVCUT.

- Examined extensively the performance of CCDPUL cut. Decided to have different cuts on second pulse energies (in kaon fibers) for vertex and non-vertex fibers. The best choice: for the vertex fiber, set the CCDPUL cut at 1.5 Mev and for the non-vertex fiber set the CCDPUL cut at 0.5 Mev.

- With the best choice of the CCDPUL cut, in the normalisation branch for the Kp2 scatter background study 44 events surfaced at the bottom who survived the CCDPUL cut. As in 1996 PNN2 analysis, TGPVCUT and lead glass cuts were applied as setup cuts in this normalisation branch. Examined all these 44 events using pawphoto to make sure that the CCDPUL cut is working. The PV rejection was calculated to be 217 ± 72 for the 1/3 sample. In this PV rejection branch, the CCDPUL,CHI567 and VERRANG cuts were reversed.

- With 44 events in the normalisation branch and with a PV rejection of 217 ± 72 the kp2-scatter background from the 1/3 sample is calculated to be 0.6083 ± 0.152. For 1996 PNN2 analysis the Kpi2-scatter background was calculated to be : 0.623 ± 0.170.

- The km21 based acceptance is calculated to be : 0.0658 ± 0.0056. The CCDPUL cut acceptance was calculated to be 0.5575 ± 0.0065. The km21 based acceptance obtained from study is about 65% better than as it was calculated in 1996.

	PNN2BOX	(rej.)	Kp2Box	(rej.)	Nobox	(rej.)	
NoCUT	102117	1.0000	138167	1.0000	437213	1.0000	
RecoTDKine	17368	5.8796	58412	2.3654	91916	4.7567	
TGPVCUT+PBG	2821	6.1567	31655	1.8453	40062	2.2943	
SETUP	2821	6.1567	31655	1.8453	40062	2.2943	
B4TIM	2701	1.0444	30672	1.0320	38744	1.0340	
B4TIM	2701	1.0444	30672	1.0320	38744	1.0340	
B4EKZ	1689	1.5992	23190	1.3226	28636	1.3530	
B4EKZ_IC	1679	1.0060	23096	1.0041	28506	1.0046	
TGZFOOL	1670	1.0054	23004	1.0040	28387	1.0042	
EPITG	1068	1.5637	21842	1.0532	25969	1.0931	
EPIMAXK	1068	1.0000	21842	1.0000	25969	1.0000	
TARGF	1040	1.0269	21509	1.0155	25506	1.0182	
DTGTTP	1035	1.0048	21508	1.0000	25497	1.0004	
RTDIF	1033	1.0019	21456	1.0024	25423	1.0029	
DRP	1030	1.0029	21444	1.0006	25405	1.0007	
TGKTIM	948	1.0865	21151	1.0139	24926	1.0192	
EIC	932	1.0172	21100	1.0024	24838	1.0035	
TIC	932	1.0000	21100	1.0000	24837	1.0000	
TGEDGE	914	1.0197	20881	1.0105	24576	1.0106	
TGDEDX	790	1.1570	20124	1.0376	23476	1.0469	
TGENR	750	1.0533	19035	1.0572	22184	1.0582	
PIGAP	738	1.0163	18945	1.0048	22023	1.0073	
TGB4	686	1.0758	18338	1.0331	21077	1.0449	
PHIVTX	586	1.1706	17666	1.0380	20213	1.0427	
OPSVETO	586	1.0000	17666	1.0000	20213	1.0000	
TIMKF	509	1.1513	16044	1.1011	18327	1.1029	
CCDPUL	134	3.7985	9576	1.6754	10639	1.7226	
DELCO6	80	1.6750	7668	1.2488	8473	1.2556	
CHI567	60	1.3333	6294	1.2183	6890	1.2298	
NPITG	60	1.0000	6294	1.0000	6890	1.0000	
VERRNG	46	1.3043	5854	1.0752	6387	1.0788	
CHI5MAX	44	1.0455	5739	1.0200	6258	1.0206	
ANGLI	44	1.0000	5738	1.0002	6256	1.0003	
ALLKFIT	44	1.0000	5702	1.0063	6219	1.0059	
TPICS	44	1.0000	5695	1.0012	6212	1.0011	
KIC	44	1.0000	5692	1.0005	6208	1.0006	
EPIONK	44	1.0000	5610	1.0000	6123	1.0000	

- Kpi2-scatter background study:Normalisation Branch $\rightarrow$ CCDPUL cut (for the second pulse energy in kaon fibers) set at 1.5 Mev for the vertex fiber and at 0.5 Mev for the Non-vertex fibers.

Cut	Event	
NoCut	1953	
LHEX	1953	
RDP1	1953	
BV_ON	1953	
EC_ON	1953	
BVEC	1953	
TG	1953	
IC	1811	
VC	1602	
CO	963	
CM	946	
EC_IU	660	
EC_ID	566	
SG	80	
RD	46	
BV	37	
EC	9	

- PV Rejection $= 217 \pm 72$

- Kpi2-scatter background study:Rejection Branch $\rightarrow$ CCDPUL cut (for the second pulse energy in kaon fibers) set at 1.5 Mev for the vertex fiber and at 0.5 Mev for the Non-vertex fibers.

SETUP_RD	29274	1.00000	
RRS	29274	1.00000	
TRKTIM	29268	0.99980	
$A_{rd} = 0.9998$			
SETUP_RECO	9751	1.00000	
UTC	9751	1.00000	
UTCQUAL	9418	0.96585	
TARGET REC	9388	0.99681	
$A_{reco} = 0.9628 \pm 0.0019$			
SETUP_PSCT	14006	1.00000	
ICBIT	13999	0.99950	
DCBIT	12554	0.89678	
PSCUT1	12319	0.98128	
B4DEDX	12257	0.99497	
BWTRS	12176	0.99339	
B4TRS	12172	0.99967	
B4TRS2	12129	0.99647	
B4TD	12067	0.99489	
CPITRS	12062	0.99959	
CKTRS	12057	0.99959	
BHTRS	12057	1.00000	
TIMCON_TK	12048	0.99925	
TIMCON_TP	12005	0.99643	
DELC_PNN1	10906	0.90845	
$A_{psct} = 0.7787 \pm 0.0035$			

- Km21 based acceptance study: $\rightarrow$ CCDPUL cut (for the second pulse energy in kaon fibers) set at 1.5 Mev for the vertex fiber and at 0.5 Mev for the Non-vertex fibers.

SETUP_TG	9529	1.00000	
B4TIM	9269	0.97271	
B4EKZ	7341	0.79199	
B4EKZ_IC	7316	0.99659	
TGZFOOL	7299	0.99768	
EPITG	7040	0.96452	
EPIMAXK	7040	1.00000	
TGER	7040	1.00000	
TARGF	6890	0.97869	
DTGTTP	6889	0.99985	
RTDIF	6863	0.99623	
DRP	6863	1.00000	
TGKTIM	6685	0.97406	
EIC	6666	0.99716	
TIC	6659	0.99895	
TGEDGE	6654	0.99925	
TGENR	6456	0.97024	
PIGAP	6414	0.99349	
TGLIKE	6414	1.00000	
TGB4	6167	0.96149	
PHIVTX	5918	0.95962	
CCDPUL	3299	0.55745	
TIMKF	3012	0.91300	
DELCO6	2314	0.76826	
NPITG	2314	1.00000	
VERRNG	2133	0.92178	
ANGLI	2133	1.00000	
ALLKFIT	2107	0.98781	
TPICS	2105	0.99905	
KIC	2105	1.00000	
EPIONK	2062	0.97957	
$A_{tg} = 0.2164 \pm 0.0042$			

- Km21 based acceptance study Continued..

SETUP_PV	7639	1.00000	
LHEX	7268	0.95143	
ON_BV	7177	0.98748	
ON_EC	7117	0.99164	
STLAY	6992	0.98244	
RSHEX	6630	0.94823	
P1_INTIME	6620	0.99849	
PVCUT	6481	0.97900	
TGPVCUT	6463	0.99722	
RSHEX2	6463	1.00000	
TGPVTR	6463	1.00000	
TG	5627	0.87065	
IC	5583	0.99218	
VC	5558	0.99552	
CO	5484	0.98669	
CM	5482	0.99964	
EC_IU	4716	0.86027	
EC_ID	4634	0.98261	
SIN_ENDED	4629	0.99892	
RD	4292	0.92720	
BV	4067	0.94758	
EC	3201	0.78707	
PBNRS	3097	0.96751	
$A_{pv} = 0.4054 \pm 0.0056$			

- More acceptance tables..

Summary of the Kpi2-scatter background.

- CCDPUL cut set at 1 Mev (for all the kaon fibers) for the secondpulse energy in pion time.

  $N_{bck} = 0.6976 \pm 0.175$

  $A_{km21} = 0.0682 \pm 0.0056$

  CCDPUL cut acceptance $= 0.5870 \pm 0.0064$

- CCDPUL cut set at 0.8 Mev (for all the kaon fibers) for the second-pulse energy in pion time.

  $N_{bck} = 0.622 \pm 0.156$

  $A_{km21} = 0.06193 \pm 0.0056$

  CCDPUL cut acceptance $= 0.54039 \pm 0.0065$

- CCDPUL cut set at 0.5 Mev (for all the kaon fibers) for the second-pulse energy in pion time.

  $N_{bck} = 0.5479 \pm 0.137$

  $A_{km21} = 0.0551 \pm 0.0056$

  CCDPUL cut acceptance $= 0.48276 \pm 0.0065$

- CCDPUL cut set at 1.0 Mev for the vertex fiber and at 0.5 Mev for non-vertex fiber (for the secondpulse energy in pion time).

  $N_{bck} = 0.5780 \pm 0.145$

  $A_{km21} = 0.06033 \pm 0.0056$

  CCDPUL cut acceptance $= 0.5223 \pm 0.0065$

- CCDPUL cut set at 1.5 Mev for the vertex fiber and at 0.5 Mev for non-vertex fiber (for the secondpulse energy in pion time).

  $N_{bck} = 0.6083 \pm 0.152$

  $A_{km21} = 0.0658 \pm 0.0056$

  CCDPUL cut acceptance $= 0.55745 \pm 0.0065$

- CCDPUL cut set at 1.5 Mev for the vertex fiber and at 1.0 Mev for non-vertex fiber (for the secondpulse energy in pion time).

  $N_{bck} = 0.7606 \pm 0.190$

  $A_{km21} = 0.0750 \pm 0.0056$

  CCDPUL cut acceptance $= 0.6293 \pm 0.0063$

Looking a step further...

- For 1997,
  $KB_L = 6.087 \times 10^{11}$
  $f_s = 0.726$ (from '95-'97 PNN1 analysis)
  $A_{tot} = 1.953 \times 10^{-3}$
  (for 1996, $A_{tot} = 1.190 \times 10^{-3}$)

  $\epsilon_{T.2} = 0.930$ (from '95-'97 PNN1 analysis)

  $(SES)^{-1} = 1.246 \times 10^{-09}$

  (1996 PNN2 $\rightarrow (1.11 \pm 0.25) \times 10^{-09}$)