Ar Meeting

Hongxia Dai

Jun 20,2017

Systematic Error

- Systematic error for cerenkov cut efficiency

Run#	Eff0 % (cer>500)	Eff1 %(cer>450)	Eff2 %(cer>550)	(Eff1-Eff0)/E0%	(Eff2-Eff0)/E0%	Total%
730	99.8961	99.9299	99.8598	0.03383	-0.03633	0.04965
731	99.8598	99.9066	99.7757	0.04686	-0.08421	0.09637
739	99.8126	99.8751	99.7293	0.06261	-0.08345	0.10433
740	99.8669	99.9144	99.7687	0.04756	-0.09833	0.10923
747	99.8735	99.9074	99.7899	0.03394	-0.08370	0.09032
748	99.8318	99.887	99.7077	0.05529	-0.12430	0.13605
755	99.8187	99.8745	99.7258	0.05590	-0.09306	0.10856
756	99.8114	99.8858	99.7071	0.07454	-0.10449	0.12835
763	99.8039	99.8529	99.7059	0.04909	-0.09819	0.10978

Systematic Error

- Systematic error for calorimeter cut efficiency

Run#	Eff0 % (E/p0>0.7)	Eff1 %(E/p0>0.65)	Eff2%(E/p0>0.75)	(Eff1-Eff0)/Eff0%	(Eff2-Eff0)/Eff0%	Total%
730	99.4279	99.6278	99.0336	0.20105	-0.39656	0.44462
731	99.5244	99.7045	99.2273	0.18096	-0.29851	0.34908
739	99.5225	99.6755	99.2177	0.15373	-0.30626	0.34268
740	99.5003	99.6804	99.1852	0.18100	-0.31668	0.36476
747	99.5399	99.7152	99.2735	0.17611	-0.26763	0.32037
748	99.5227	99.6853	99.2147	0.16337	-0.30947	0.34995
755	99.5275	99.6885	99.2344	0.16176	-0.29449	0.33599
756	99.4684	99.6324	99.1836	0.16487	-0.28632	0.33040
763	99.4619	99.6233	99.1609	0.16227	-0.30262	0.34338

Systematic error by acceptance cuts run730 total=1.963%

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-290737)/290737
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	286478	140300	142386	290737	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	286478	141892	143907	290546	-0.0656
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	286478	129401	131479	291078	0.1172
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	286478	139390	141317	290438	-0.1028
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	286478	140724	143174	291466	0.2507
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	286478	138706	140838	290881	0.0495
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	286478	140300	142386	290737	0
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	286478	140300	142386	290737	0
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	286478	141745	143456	289936	-0.2755
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	286478	138623	140885	291153	0.1430
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	286478	138205	140506	291248	0.1757
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	286478	142039	144175	290786	0.0168
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	286478	143124	148020	296278	1.9058

Run731 total=1.005%

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-269204)/269204
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	274327	187969	184459	269204	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	274327	188424	185022	269374	0.0631
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	274327	180483	176722	268610	-0.2207
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	274327	185276	181856	269263	0.0219
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	274327	188781	185895	270133	0.3451
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	274327	187570	183876	268924	-0.104
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	274327	187585	184033	269133	-0.0264
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	274327	188433	184834	269087	-0.0435
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	274327	190234	186244	268573	-0.2344
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	274327	185513	182177	269394	0.0706
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	274327	184988	181374	268968	-0.0877
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	274327	190741	187380	269493	0.1074
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	274327	189033	187105	271529	0.8637

Run739 total=0.846%

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-276935)/276935
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	276328	158033	158380	276935	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	276328	158485	158848	276961	0.0094
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	276328	152487	152819	276930	-0.0018
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	276328	155221	155491	276809	-0.0455
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	276328	158807	159859	278159	0.442
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	276328	157556	157946	277012	0.0278
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	276328	157485	157787	276858	-0.0278
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	276328	158544	159002	277126	0.069
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	276328	160083	160091	276342	-0.2141
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	276328	155829	156333	277222	0.1036
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	276328	155457	155385	276200	-0.2654
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	276328	160483	161192	277549	0.2217
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	276328	159108	160381	278539	0.5792

Run740 total=0.947

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-342595)/342595
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	394063	281345	244599	342595	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	394063	282293	245440	342619	0.007
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	394063	270568	235120	342436	-0.0464
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	394063	276526	240651	342939	0.1004
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	394063	282916	246917	343921	0.387
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	394063	280413	243739	342525	-0.0204
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	394063	280606	243916	342538	-0.0166
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	394063	281962	245306	342833	0.0695
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	394063	284796	247074	341868	-0.2122
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	394063	277391	241461	343021	0.1243
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	394063	276565	240266	342342	-0.0738
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	394063	285269	248680	343520	0.27
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	394063	283436	248310	345227	0.7683

Run747 total=0.971%

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-278243)/278243
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	306268	186055	169030	278243	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	306268	186643	169533	278192	-0.0183
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	306268	179975	162906	277221	-0.3673
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	306268	182611	166116	278603	0.1294
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	306268	187091	170685	279411	0.4198
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	306268	185489	168514	278240	-0.0011
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	306268	185373	168472	278345	0.0367
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	306268	186635	169604	278320	0.0277
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	306268	188272	170752	277768	-0.1707
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	306268	183376	166778	278547	0.1093
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	306268	183026	165987	277756	-0.175
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	306268	188812	171980	278965	0.2595
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	306268	187249	171285	280157	0.6879

Run748 total =0.969%

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-278508)/278508
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	279882	166577	165759	278508	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	279882	167036	166247	278560	0.0187
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	279882	161307	160132	277843	-0.2388
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	279882	163215	162659	278929	0.1512
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	279882	167503	167497	279872	0.4898
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	279882	166077	165281	278541	0.0118
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	279882	166100	165197	278360	-0.0531
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	279882	167197	166306	278390	-0.0424
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	279882	168789	167487	277723	-0.2819
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	279882	164137	163598	278963	0.1634
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	279882	163860	162801	278073	-0.1562
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	279882	168945	168545	279219	0.2553
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	279882	167624	167880	280309	0.6467

Run755 total=0.790%

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-291181)/291181
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	290763	174585	174836	291181	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	290763	175107	175349	291165	-0.0055
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	290763	168918	168883	290703	-0.1642
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	290763	171366	171456	290916	-0.091
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	290763	175726	176617	292237	0.3627
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	290763	174046	174250	291104	-0.0264
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	290763	174088	174316	291144	-0.0127
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	290763	175240	175385	291004	-0.0608
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	290763	176822	176618	290428	-0.2586
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	290763	172019	172563	291683	0.1724
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	290763	171679	171806	290978	-0.0697
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	290763	177190	177774	291721	0.1855
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	290763	175848	177093	292822	0.5636

Run756 total=0.792%

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-273326)/273326
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	275992	166166	164561	273326	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	275992	166646	165095	273423	0.0355
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	275992	160564	159043	273378	0.019
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	275992	162983	161333	273198	-0.0468
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	275992	167291	166314	274380	0.3856
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	275992	165677	163989	273180	-0.0534
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	275992	165720	164083	273266	-0.022
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	275992	166692	165064	273297	-0.0106
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	275992	168288	166266	272676	-0.2378
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	275992	163758	162460	273804	0.1749
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	275992	163270	161673	273292	-0.0124
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	275992	168545	167290	273937	0.2235
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	275992	167421	166762	274906	0.5781

Run763 total=0.813%

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-268041)/268041
[-0.035,0.03], [-0.05,0.05], [-0.028,0.028]	273399	164859	161628	268041	0
[-0.0352,0.03], [-0.05,0.05], [-0.028,0.028]	273399	165367	162154	268087	0.0172
[-0.0348,0.03], [-0.05,0.05], [-0.028,0.028]	273399	159568	156161	267562	-0.1787
[-0.035,0.0298], [-0.05,0.05], [-0.028,0.028]	273399	161663	158462	267986	-0.0205
[-0.035,0.0302], [-0.05,0.05], [-0.028,0.028]	273399	165932	163473	269347	0.4872
[-0.035,0.03], [-0.052,0.05], [-0.028,0.028]	273399	164383	161101	267940	-0.0377
[-0.035,0.03], [-0.048,0.05], [-0.028,0.028]	273399	164259	161095	268133	0.0343
[-0.035,0.03], [-0.05,0.048], [-0.028,0.028]	273399	165299	162117	268136	0.0354
[-0.035,0.03], [-0.05,0.052], [-0.028,0.028]	273399	166915	163399	267640	-0.1496
[-0.035,0.03], [-0.05,0.05], [-0.03,0.028]	273399	162483	159588	268528	0.1817
[-0.035,0.03], [-0.05,0.05], [-0.026,0.028]	273399	162114	158703	267646	-0.1474
[-0.035,0.03], [-0.05,0.05], [-0.028,0.026]	273399	167271	164360	268641	0.2238
[-0.035,0.03], [-0.05,0.05], [-0.028,0.03]	273399	166103	163680	269411	0.5111