

# Ar Meeting

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# One-track efficiency between[phi\_1,phi\_2]

- Make cuts to select electron sample

- Trigger cut: DR.evtypebits>>3&1

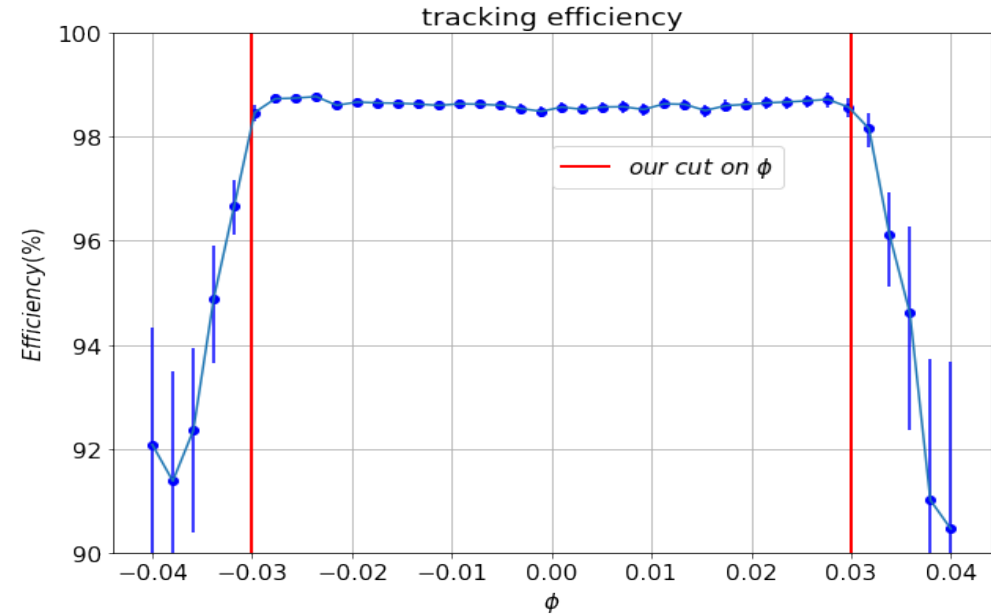
- Acceptance cuts:

- $\text{abs}(L.\text{tr.tg\_th}) < 0.05$
- $L.\text{tr.tg\_dp} > -0.035 \ \&\& \ L.\text{tr.tg\_dp} < 0.03$
- $L.\text{tr.tg\_ph} > \text{phi}_1 \ \&\& \ L.\text{tr.tg\_ph} < \text{phi}_2$

- PID cuts:

- $L.\text{cer.asum\_c} > 500 \ \&\& \ E/p_0 > 0.8$

- $$eff = \frac{\# \text{ single track events}}{\# \text{ sample events}}$$



# Systematic Error

- Systematic error for cerenkov cut efficiency

Run#	Eff0 % (cer>500)	Eff1 %(cer>450)	Eff2 %(cer>550)	(Eff1-Eff0)%	(Eff2-Eff0)%
730	99.932	99.966	99.898	0.0339	-0.0340
731	99.864	99.914	99.823	0.0500	-0.0408
739	99.856	99.902	99.794	0.0461	-0.0624
740	99.859	99.909	99.778	0.0501	-0.0805
747	99.866	99.901	99.790	0.0427	-0.0763
748	99.854	99.898	99.767	0.0471	-0.0871
755	99.848	99.898	99.760	0.0495	-0.0884
756	99.845	99.898	99.751	0.0522	-0.0943
763	99.838	99.889	99.742	0.0508	-0.0960

# Systematic Error

- Systematic error for calorimeter cut efficiency

Run#	Eff0 % (E/p0>0.8)	Eff1 %(E/p0>0.75)	Eff2%(E/p0>0.85)	(Eff1-Eff0)%	(Eff2-Eff0)%
730	98.2732	99.0404	96.2439	0.7672	-2.0293
731	98.7742	99.3045	97.6037	0.5303	-1.1705
739	99.0835	99.4385	98.2981	0.355	-0.7854
740	99.148	99.4804	98.4319	0.3324	-0.7161
747	99.3221	99.5765	98.7897	0.2544	-0.5324
748	99.4229	99.6287	98.9992	0.2058	-0.4237
755	99.4819	99.6709	99.0977	0.189	-0.3842
756	99.5409	99.6949	99.2011	0.154	-0.3398
763	99.5765	99.7132	99.2657	0.1367	-0.3108

# Systematic error by acceptance cuts

run730

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-293552)/293552
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	286522	143570	147093	293552	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	286522	145175	148694	293467	-0.029
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	286522	141967	145470	293591	0.013
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	286522	143570	147093	293552	0
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	286522	143570	147093	293552	0
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	286522	145015	148156	292728	-0.281
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	286522	141893	145613	294033	0.164
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	286522	141475	145222	294110	0.19
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	286522	145310	148869	293539	-0.004
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	286522	143570	148076	295514	0.668
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	286522	129845	130733	288481	-1.728
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	286522	142236	145248	292589	-0.328
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	286522	143583	147614	294565	0.345

## run731

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-269836)/269836
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	275420	190602	186738	269836	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	275420	191068	187318	270014	0.066
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	275420	190194	186139	269547	-0.107
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	275420	190216	186312	269767	-0.026
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	275420	191067	187111	269717	-0.044
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	275420	192876	188512	269188	-0.24
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	275420	188136	184475	270060	0.083
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	275420	187601	183672	269651	-0.068
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	275420	193392	189636	270070	0.087
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	275420	190609	187320	270667	0.308
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	275420	182017	176448	266993	-1.054
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	275420	187083	182736	269020	-0.302
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	275420	190614	187591	271052	0.45

## run739

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-277280)/277280
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	276880	160201	160433	277280	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	276880	160674	160916	277297	0.006
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	276880	159704	159973	277346	0.024
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	276880	159653	159843	277209	-0.026
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	276880	160714	161051	277460	0.065
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	276880	162256	162132	276668	-0.221
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	276880	157993	158401	277595	0.113
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	276880	157620	157461	276600	-0.245
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	276880	162658	163218	277833	0.199
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	276880	160207	160944	278153	0.315
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	276880	153568	152938	275744	-0.554
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	276880	156608	156091	275965	-0.474
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	276880	160212	161251	278675	0.503

# run740

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-343348)/343348
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	393961	284934	248328	343348	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	393961	285905	249209	343395	0.014
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	393961	283926	247430	343321	-0.008
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	393961	284195	247643	343291	-0.017
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	393961	285551	249036	343583	0.068
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	393961	288384	250779	342588	-0.221
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	393961	280978	245220	343824	0.139
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	393961	280134	244026	343181	-0.049
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	393961	288857	252377	344207	0.25
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	393961	284944	249202	344544	0.348
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	393961	272069	235242	340634	-0.79
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	393961	278546	242098	342410	-0.273
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	393961	284967	249606	345075	0.503



## run747

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-278876)/278876
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	305794	187994	171446	278876	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	305794	188601	171970	278828	-0.017
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	305794	187419	170907	278852	-0.009
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	305794	187310	170890	278987	0.04
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	305794	188580	172014	278931	0.02
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	305794	190208	173160	278386	-0.176
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	305794	185319	169207	279207	0.119
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	305794	184967	168412	278424	-0.162
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	305794	190749	174379	279550	0.242
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	305794	187994	172007	279789	0.327
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	305794	180731	163137	276025	-1.023
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	305794	183520	166909	278115	-0.273
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	305794	188022	172361	280323	0.519

## run748

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-279129)/279129
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	279256	168173	168097	279129	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	279256	168645	168598	279178	0.017
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	279256	167665	167608	279161	0.011
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	279256	167698	167540	278992	-0.049
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	279256	168792	168641	279006	-0.044
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	279256	170380	169812	278325	-0.288
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	279256	165738	165960	279630	0.179
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	279256	165452	165156	278756	-0.134
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	279256	170536	170862	279789	0.236
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	279256	168199	168674	280044	0.328
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	279256	161869	160420	276756	-0.85
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	279256	163895	163290	278225	-0.324
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	279256	168227	169041	280607	0.529

## run755

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-291207)/291207
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	289742	176368	177260	291207	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	289742	176913	177804	291201	-0.002
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	289742	175810	176656	291136	-0.024
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	289742	175873	176743	291175	-0.011
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	289742	177027	177811	291025	-0.063
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	289742	178597	179032	290447	-0.261
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	289742	173809	174999	291725	0.178
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	289742	173468	174248	291044	-0.056
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	289742	178973	180176	291689	0.166
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	289742	176391	177907	292232	0.352
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	289742	169462	169122	289160	-0.703
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	289742	172024	172134	289927	-0.44
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	289742	176394	178354	292961	0.602

# run756

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-273552)/273552
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	275095	167998	167056	273552	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	275095	168485	167607	273661	0.04
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	275095	167491	166454	273391	-0.059
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	275095	167554	166580	273495	-0.021
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	275095	168526	167558	273514	-0.014
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	275095	170114	168750	272889	-0.242
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	275095	165599	164968	274046	0.181
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	275095	165102	164188	273572	0.007
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	275095	170380	169764	274100	0.2
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	275095	168020	167690	274554	0.366
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	275095	161163	159413	272107	-0.528
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	275095	163704	162112	272419	-0.414
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	275095	168060	168101	275162	0.588

# run763

Cuts on dp/p, th, phi	Ntotal_mc	N_mc	N_data	N_cor=N_data/(N_mc/Ntotal_mc)	Err(%)=(N_cor-268344)/268344
[-0.035,0.03], [-0.05,0.05], [-0.03,0.03]	272592	166682	164085	268344	0
[-0.0352,0.03], [-0.05,0.05], [-0.03,0.03]	272592	167202	164627	268393	0.018
[-0.0348,0.03], [-0.05,0.05], [-0.03,0.03]	272592	166191	163546	268253	-0.034
[-0.035,0.0298], [-0.05,0.05], [-0.03,0.03]	272592	166079	163554	268447	0.038
[-0.035,0.0302], [-0.05,0.05], [-0.03,0.03]	272592	167121	164572	268434	0.033
[-0.035,0.03], [-0.052,0.05], [-0.03,0.03]	272592	168732	165846	267929	-0.155
[-0.035,0.03], [-0.048,0.05], [-0.03,0.03]	272592	164313	162060	268854	0.19
[-0.035,0.03], [-0.05,0.048], [-0.03,0.03]	272592	163930	161173	268007	-0.126
[-0.035,0.03], [-0.05,0.052], [-0.03,0.03]	272592	169097	166801	268890	0.203
[-0.035,0.03], [-0.05,0.05], [-0.034,0.03]	272592	166743	164699	269250	0.337
[-0.035,0.03], [-0.05,0.05], [-0.026,0.03]	272592	160166	156633	266579	-0.658
[-0.035,0.03], [-0.05,0.05], [-0.03,0.026]	272592	162426	159120	267043	-0.485
[-0.035,0.03], [-0.05,0.05], [-0.03,0.034]	272592	166741	165105	269917	0.586

