

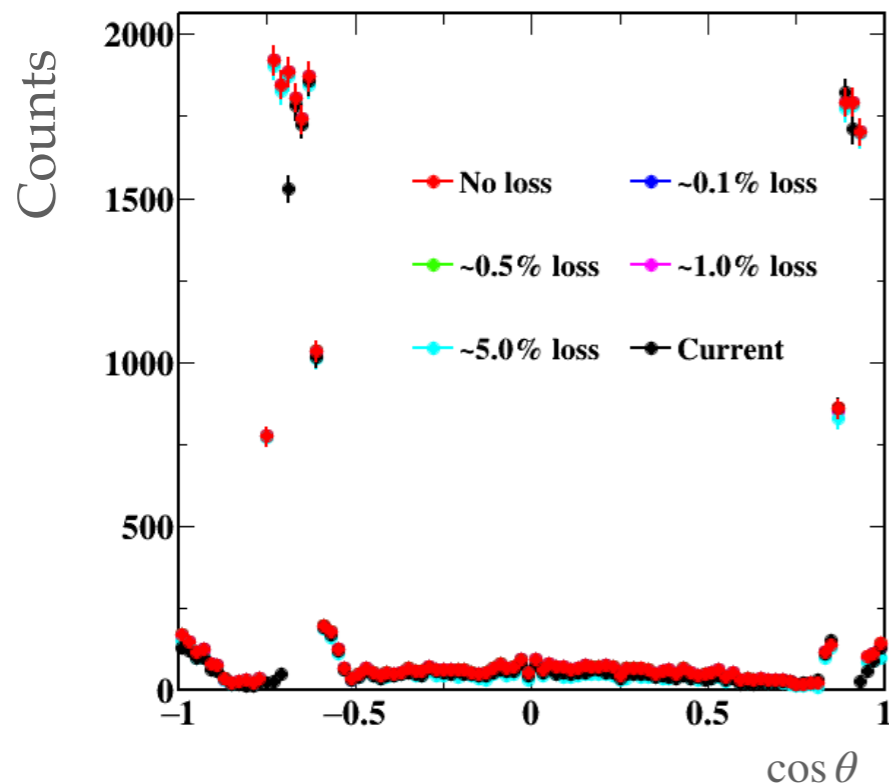
Short Tracking scheme in CDCTRG

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Recap

Test with particle-gun MC with high $\cos \theta$

- Use 4-SL patterns for new short track.
- Studied endcap only particle gun MC, reduced # of patterns by efficiency loss.
- Little loss in events in new versions, even with only 50 patterns.



	ft>0 st>0	Not in dev	Not in new	# of patterns
Dev	159059	-	-	
No loss	195943	14072	194	113
0.1%	195905	14064	196	105
0.5%	195791	14034	204	89
1.0%	195406	13996	232	80
5.0%	192683	13570	385	50

Update

Test with off-IP MC

- Increased the distance from IP, vertices (0, 40, 0) (Off-IP Vy) and (0, 0, 40) (Off-IP Vz).
10000 events for both π^+ and π^- in each case.
- Ft: full track found
St: no full track but short track found

	Off-IP Vy		Off-IP Vz		# of patterns
	Ft	St	Ft	St	
Original	880	233	14388	2236	
No loss	876	222	14388	1713	113
0.1% loss	876	222	14388	1702	105
0.5% loss	876	217	14388	1682	89
1.0% loss	876	206	14388	1643	80
5.0% loss	876	114	14388	1199	50

Extrapolation of ECL

ParticleGun MC

- Phi difference between the most inner layer of CDC and ECL Clusters of a short track.
Phi in CDC is determined by TS id in SL0.
Phi in ECL is from ECLCluster objects with *isTrack*.
- Only look for endcaps regions (ignore patterns which rarely fly to the endcaps ECL)
- Extrapolation needed to be implemented for 23 patterns (out of 113 patterns).
- Fit the distributions with a gaussian function. There are some patterns failed the fit, so I use mean and standard dev instead.

Extrapolation of ECL

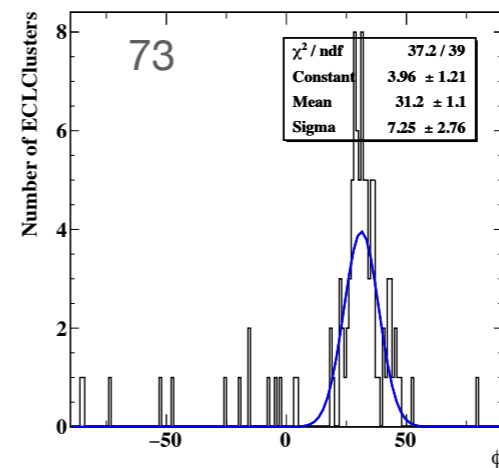
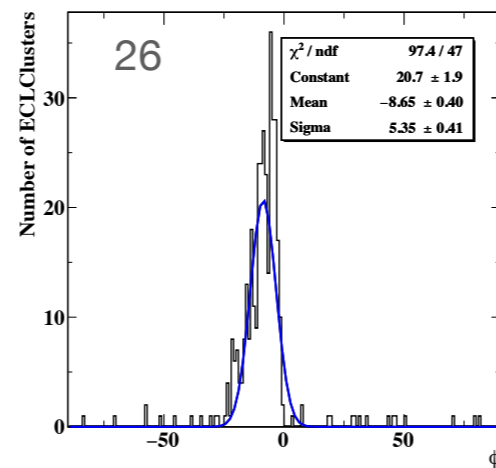
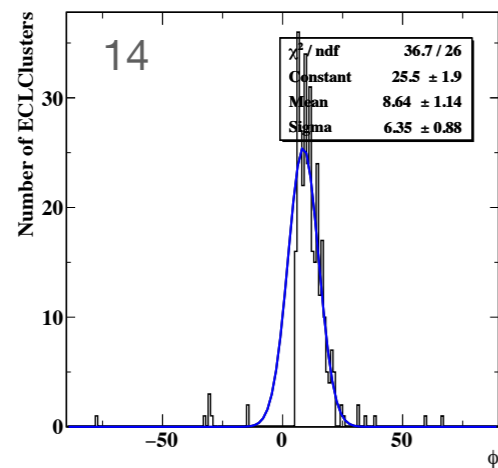
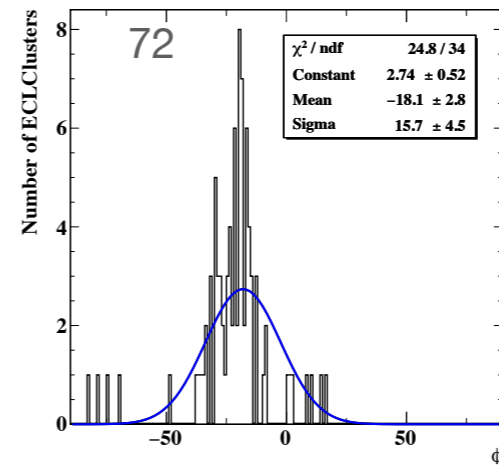
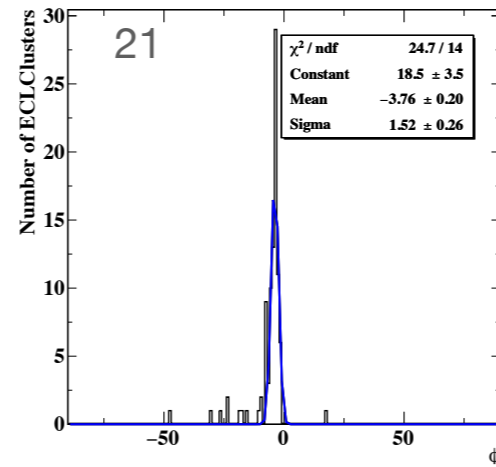
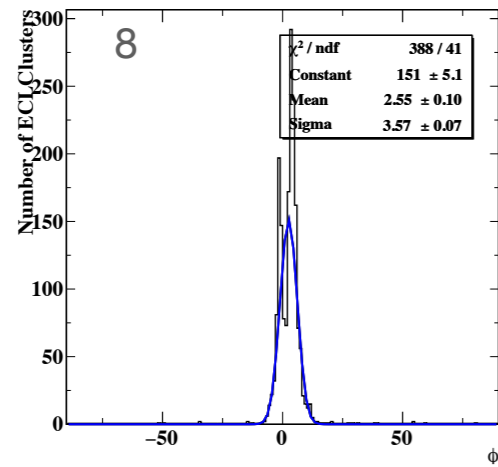
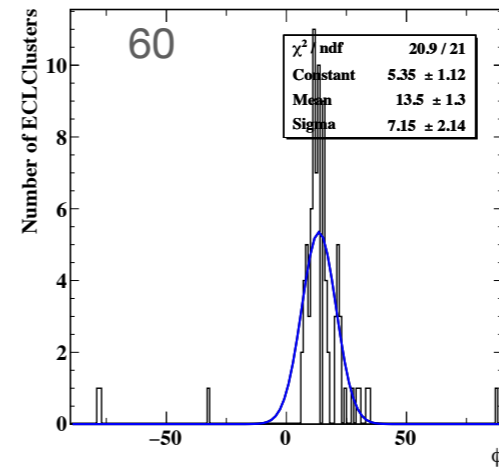
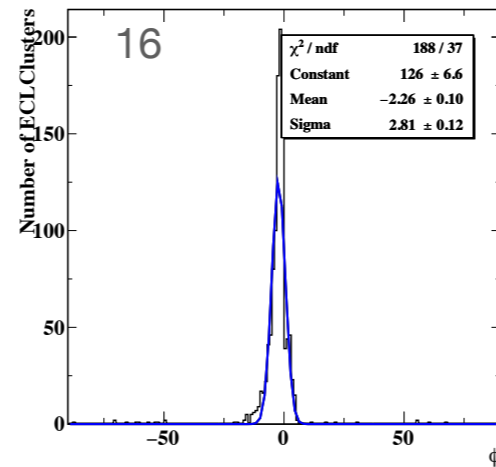
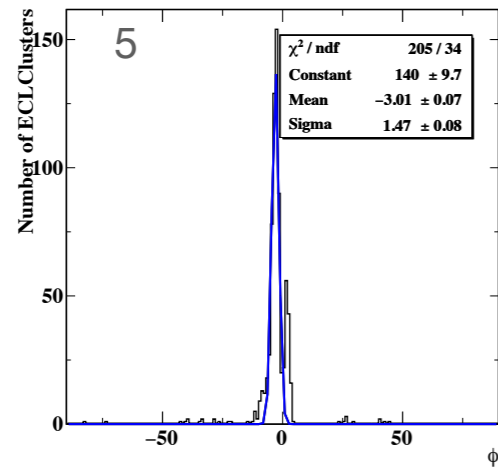
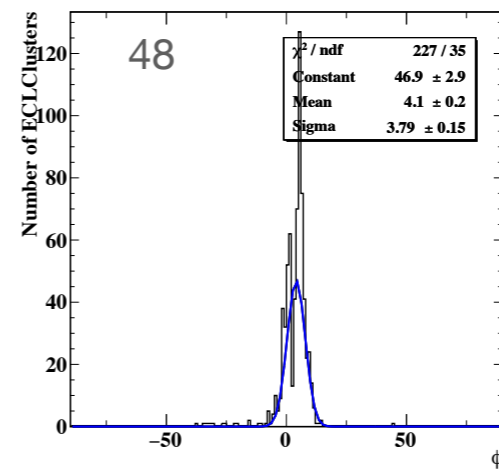
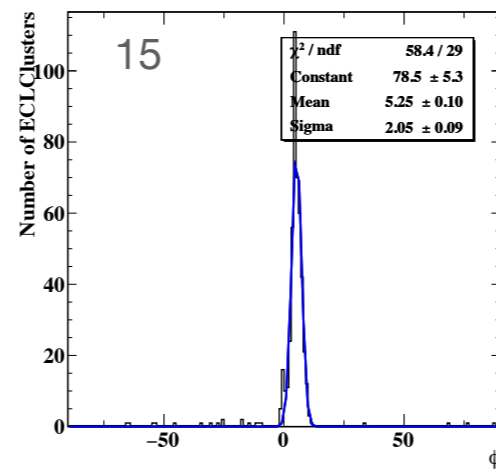
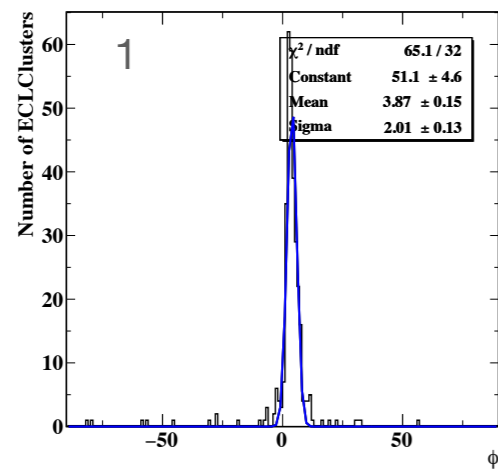
Pattern ID	backward	forward
1	3.9 ± 2.0	
5	-3 ± 1.5	
6		
8	2.6 ± 3.6	
14	8.6 ± 6.4	
15	5.3 ± 2.1	
16	-2.3 ± 2.8	
18		-3.4 ± 3.0
19		0.8 ± 2.9
21	-3.8 ± 1.5	
22		0.1 ± 15.0
26	-8.7 ± 5.4	
30		-1.4 ± 2.2
35		7.2 ± 3.3
38		3.7 ± 2.5
48	4.1 ± 3.8	
51		-6.0 ± 12.5
58		2.5 ± 12.0
59		1.4 ± 1.8
60	13.5 ± 7.2	
72	-18.1 ± 15.7	
73	31.2 ± 7.3	
86		16.3 ± 5.1
95		7.6 ± 3.7

Next Step

- Implement the new angle into the TRGGRLMatch module.
- Cosmic runs study

Backup

Backward ECL



Forward ECL

