



# Status report on $H \rightarrow \mu^- + \mu^+$ at CEPC

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# Huu

Significance					
	Zhuu	ZqqHuu	ZvvHuu	ZeeHuu	ZuuHuu
MVA pLL	7.37 (1.07)	8.17 (1.04)	2.62 (0.9)	----	----
	61.7±10.8 (54.4)	71.0±11.4 (68)	11.0±5.1 (12.3)		
Cut pLL	1.12 (-0.15~0.18)	1.04 (-0.13~0.13)	0.9 (-0.30~0.32)	----	----
	7.67 (1.27)	8.12 (1.1)	1.91 (0.78)		
MVA nLL	74.8±12.2 (58)	79.0±12.4 (71.6)	10.9±6.2 (14.0)	----	----
	1.29 (-0.17~0.17)	1.10 (-0.14~0.14)	0.78 (-0.34~0.38)		
Cut nLL	----	----	4.25	1.5	1.2
	----	----	----	0.74	0.63

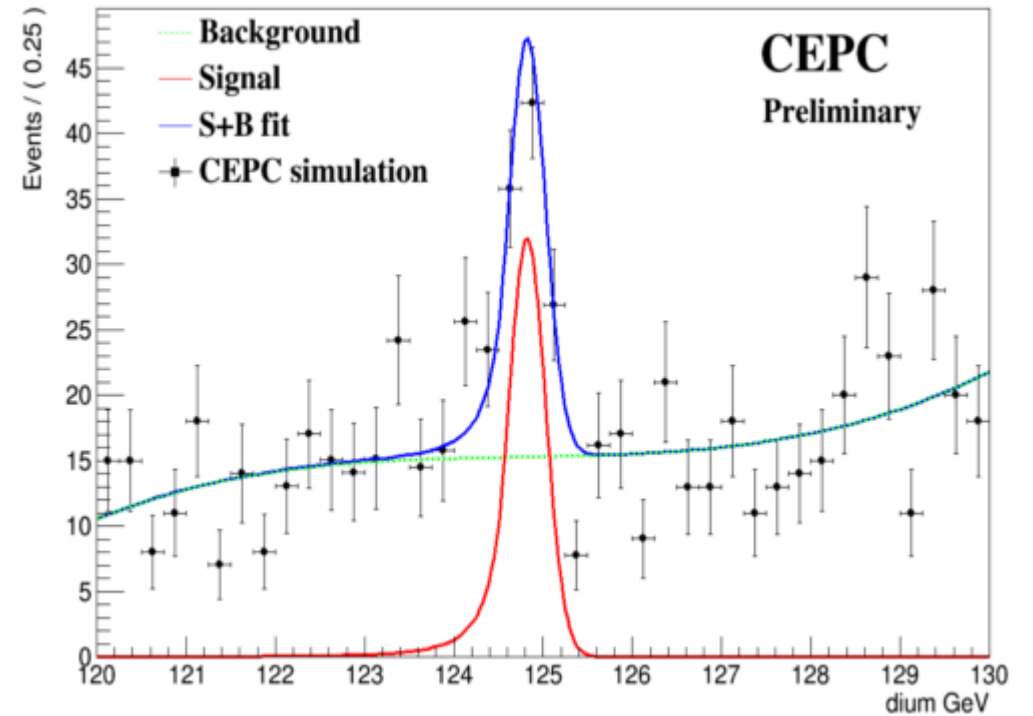
2

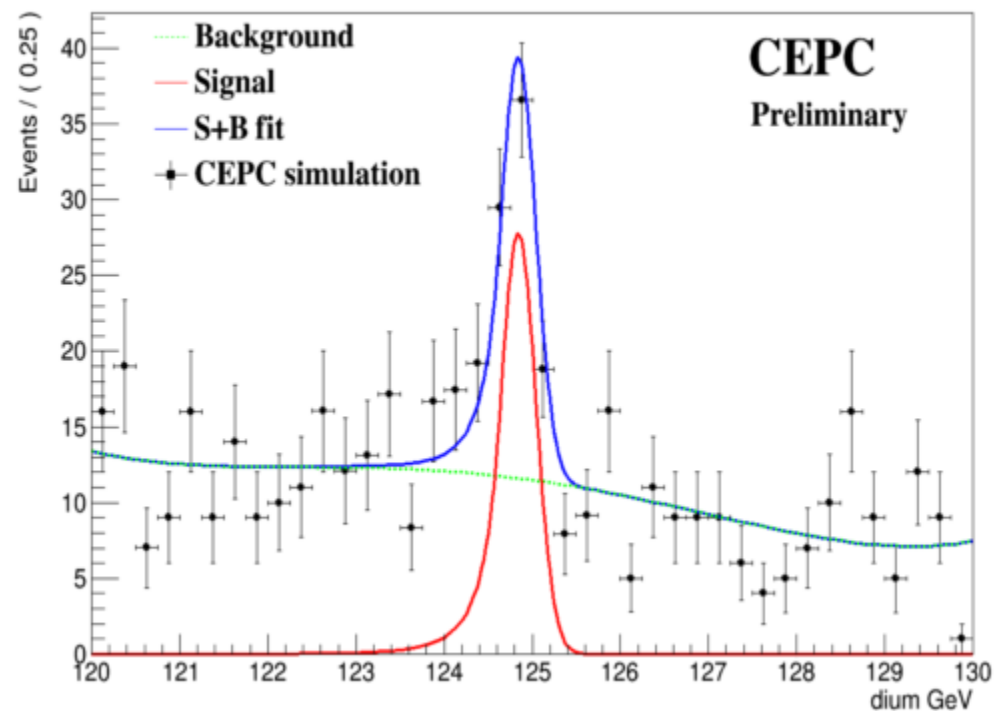
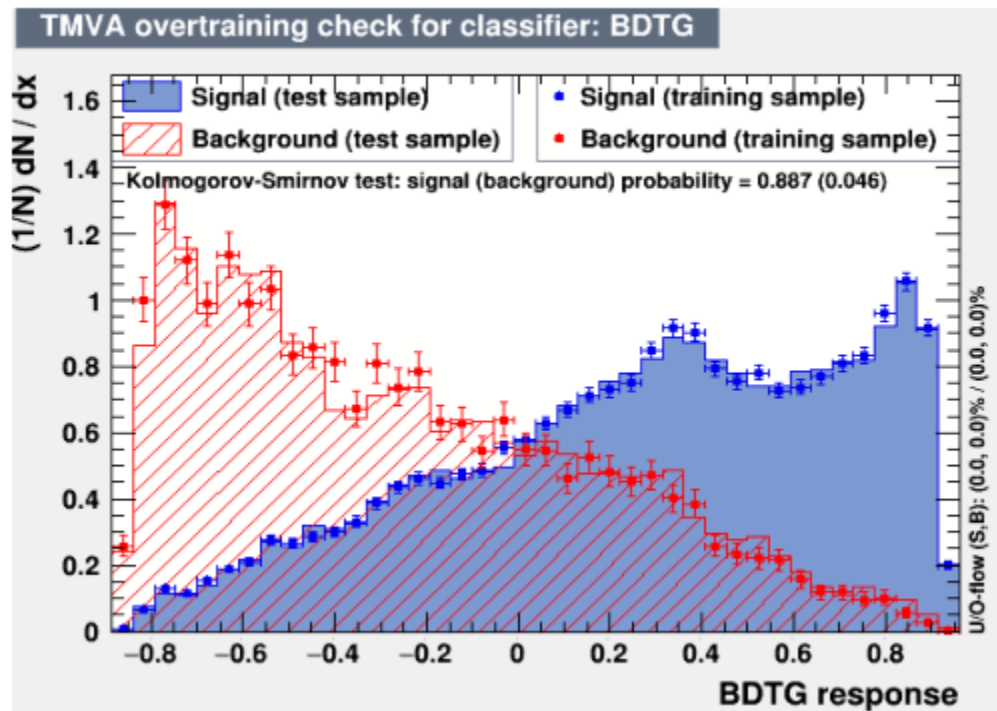
The signal events of different B and radius is processed by my plan. All events is simulated.

# ZHuu

Category	signal	ZZ	WW	ZZorWW	SingleZ	2f
Preselection	207.3	311312	129869	501590	63658	1740371
120<diu<130	189.7	5479	17126	57405	1868	52525
90.8<recoilu<93.4	118.4	1207	868	2115	164	1157
25<diupt<62.4	109.5	951	697	1675	121	439
-55.2<diupz<55.2	107.1	897	647	1613	112	391
cosum<0.28	69.7	480	55	277	55	164
cosup>-0.28	58.3	348	29	142	44	116
puu>-0.996	58.0	346	27	142	43	70
efficiency	28.0%					

Signal: CBShape  
 BKG: 4<sup>rd</sup> Chev

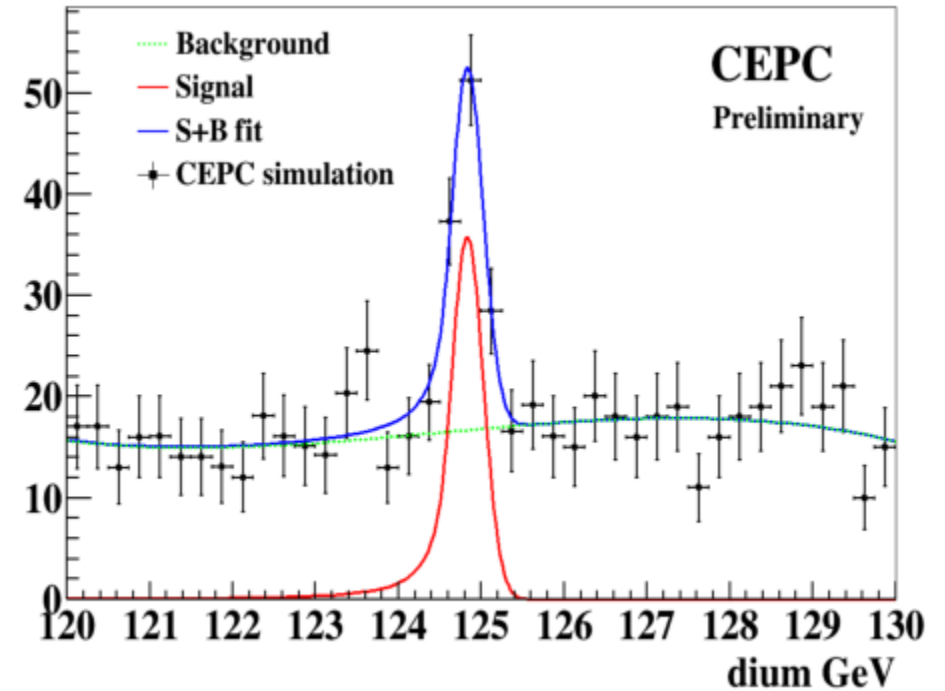




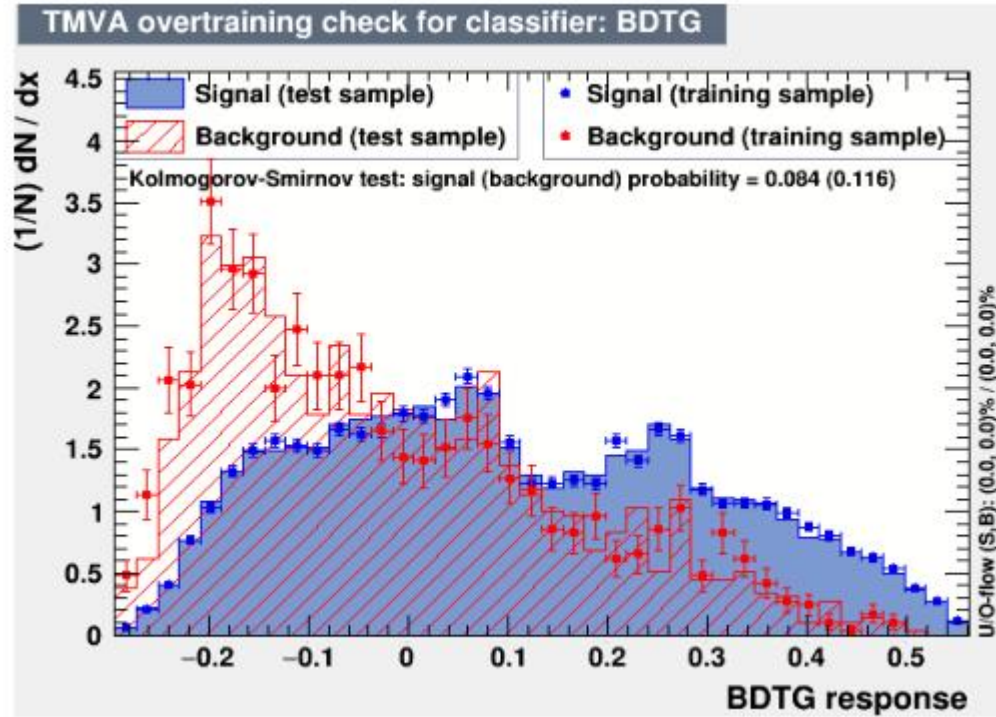
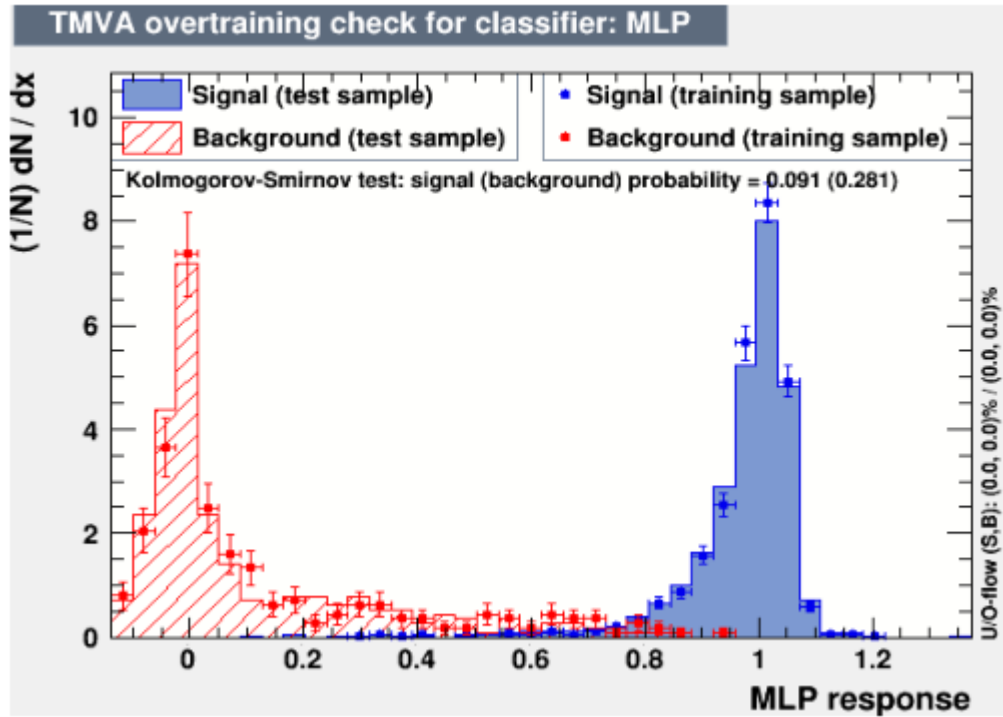
Signal: CBShape  
 BKG: 4<sup>rd</sup> Chev

# ZqqHuu

Category	signal	ZZ	WW	ZZorWW	SingleZ	2f
Preselection	207.3	390775	183751	463361	101164	0
120<invariant mass<130	141.6	3786	181	227	244	0
jet1m<4.2	133.0	3216	111	0	9	0
jet2m<2.8	127.5	2917	2	0	8	0
dijm>76.0	78.7	893	0	0	0	0
90.9<recoilu<93.5	74.9	743	0	0	0	0
20<diupt<62.3	74.2	714	0	0	0	0
-58<diupz<58	73.0	691	0	0	0	0
cosup <sub>z</sub> >0.94	71.6	665	0	0	0	0
cosum <sub>z</sub> >0.94	50.6%					

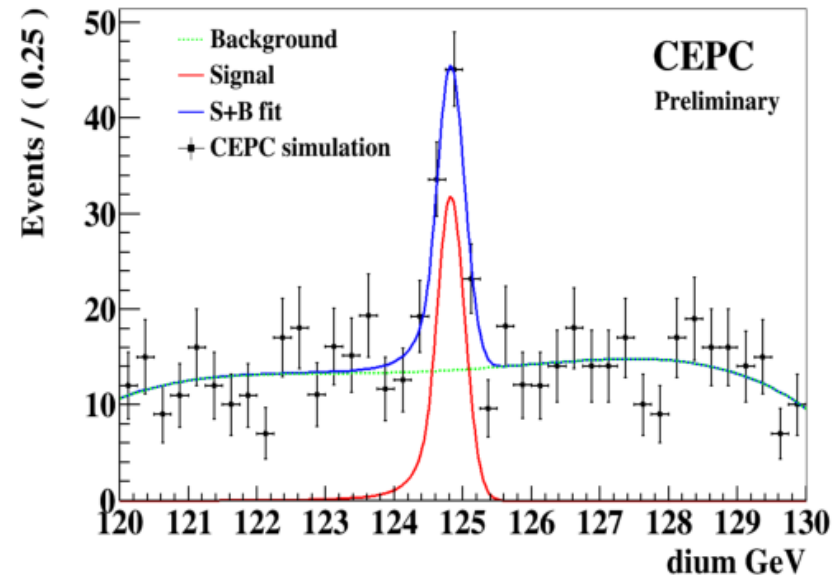


Signal: CBSshape  
 BKG: 4<sup>rd</sup> Chev



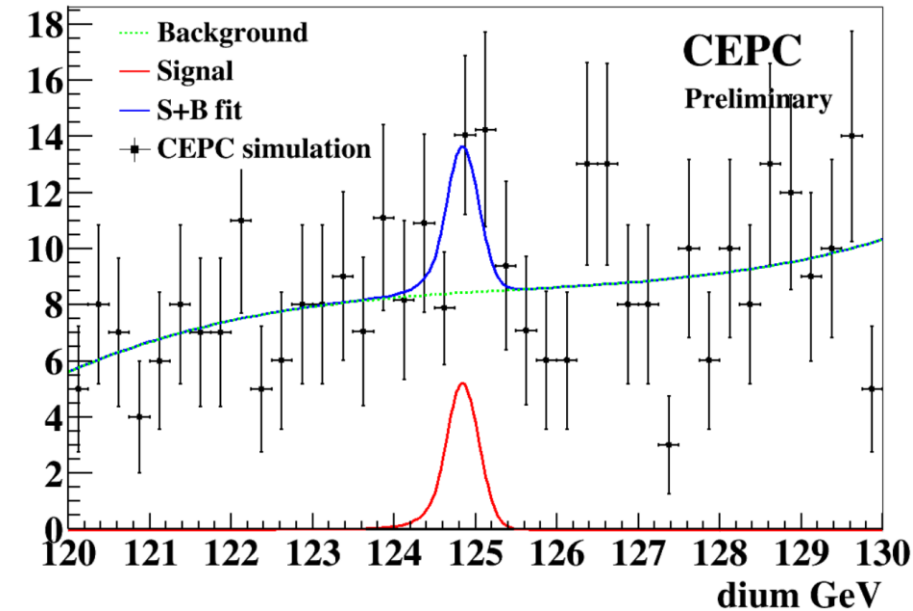
Reduce all leptons BKG  
 (S: signal and zzsl)  
 (B: all leptons BKG)

Signal: CBSshape  
 BKG: 4<sup>rd</sup> Chev

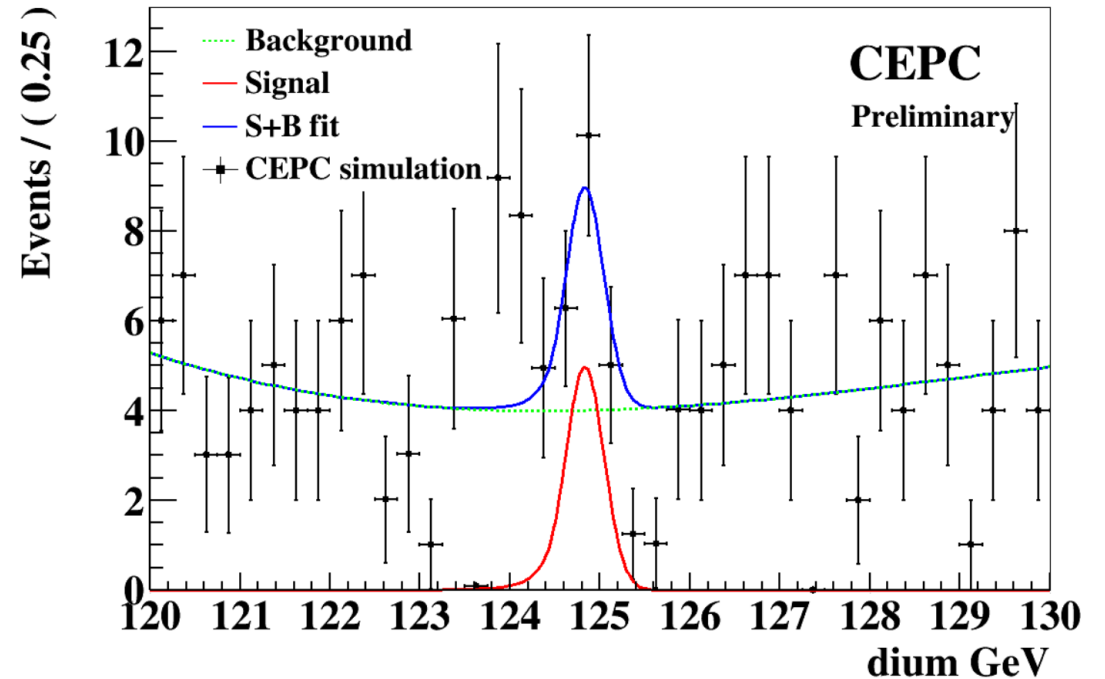
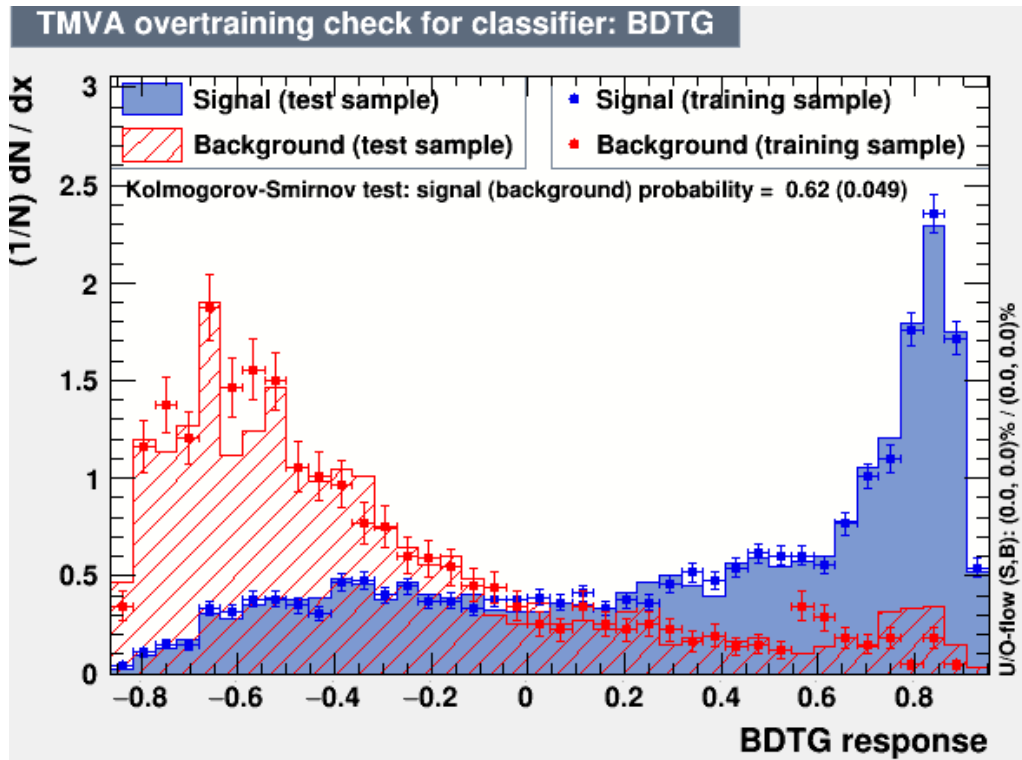


# ZvvHuu

Category	signal	ZZ	WW(SW)	ZZorWW	SingleZ	2f
Preselection	41.3	19964.6	69831	155796	23482	0.0
120<dium<130	38.1	258.3	10362	21581	275	0.0
90<recoilu<92.6	22.4	84.6	718	1510	76	0.0
20<diupt<62.3	21.2	70.2	604	1235	67	0.0
-58<diupz<58	21.0	66.6	569	1190	66	0.0
cosup>-0.50	16.1	45	121	387	47	0.0
cosum<0.50	14.0	35.1	62	195	33	0.0
efficiency	33.4%					



Signal: CBShape  
 BKG: 3<sup>rd</sup> Chev



Signal: CBShape  
 BKG: 3<sup>rd</sup> Chev