

中国科学院高能物理研究所
Institute of High Energy Physics
Chinese Academy of Sciences



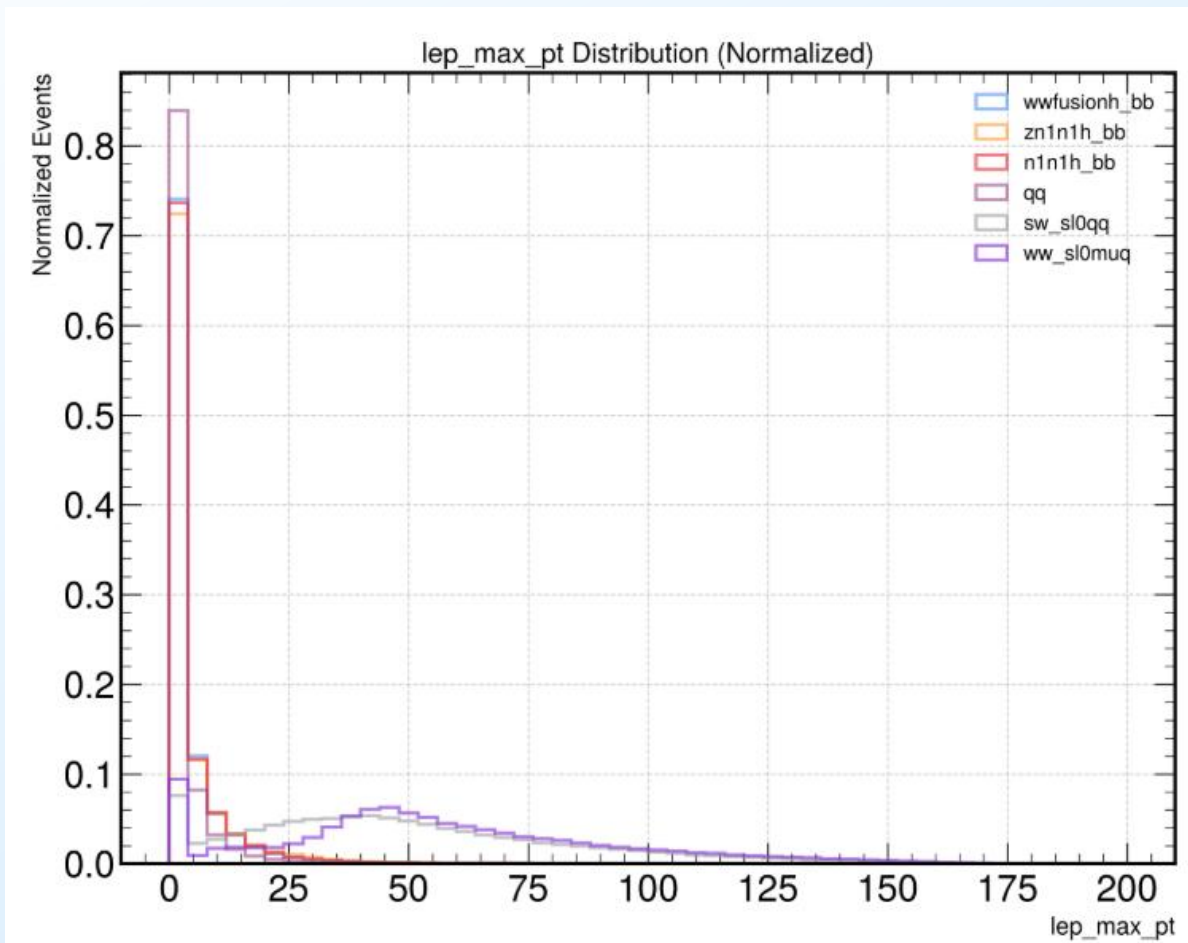
CEPC360GeV下WWfusion过程的 截面测量

报告人：侯瑛琦

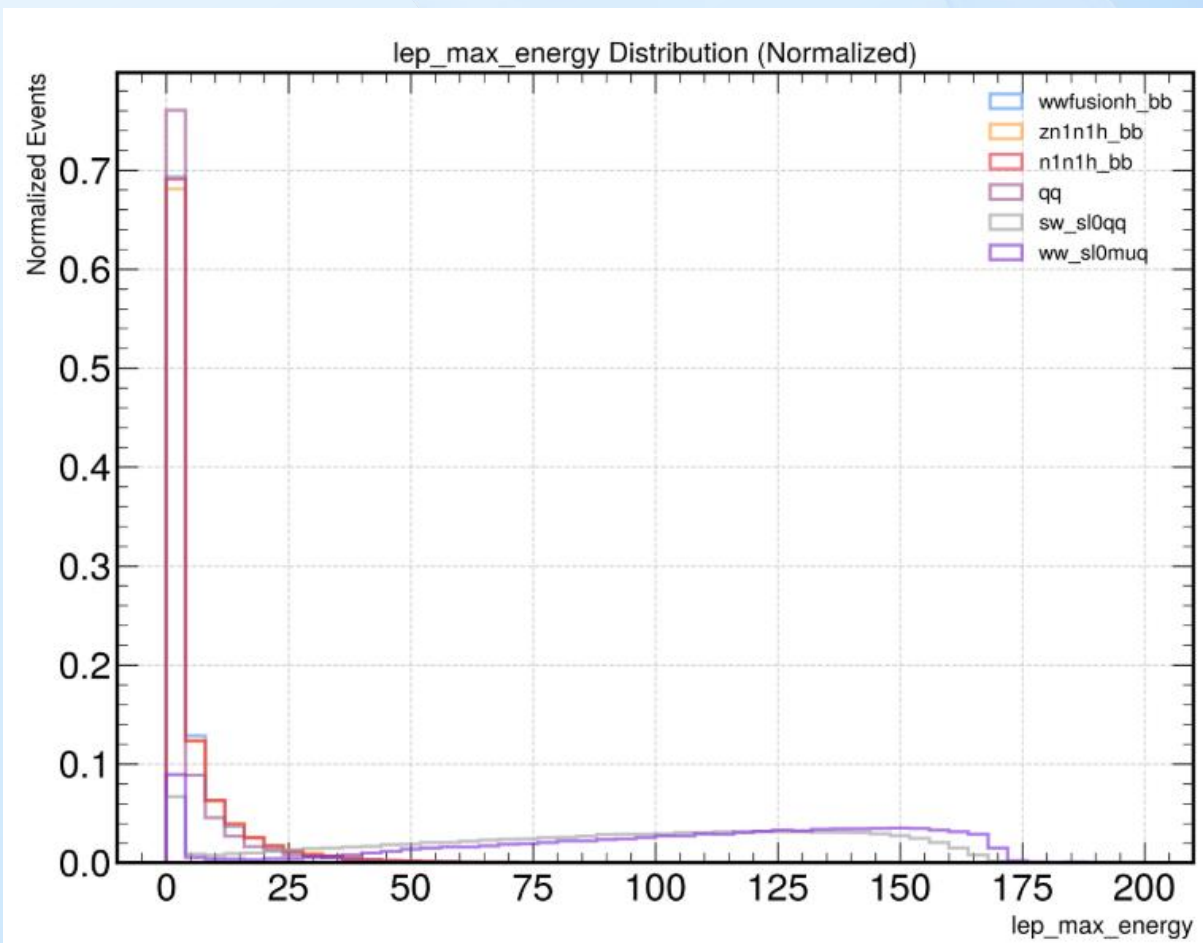
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2025.6.9

更新(lep_veto)



lep_max_pt < 20



lep_max_energy < 20

更新结果(lep_pt_veto)



• cut flow(在尽可能保留信号和ZH的情况下，去其它除本底)

cut	wwfusio n	zn1n1h	nnhbb	qq	sw_sl0q q	ww_sl	sz_sl	zz_sl	$S/\sqrt{S+B}$
pre	17209	4930	20961	2123258	117427	1686000	178340	266300	8.21
30<nPFOs<180	17196	4927	20946	2103167	117135	1674708	172670	262188	8.24
100<E<250	16667	4860	20387	1501935	44023	468516	151500	173306	10.85
pt>10	16272	4847	19998	249395	43119	456289	148885	145116	15.78
lep_veto(pt<20)	15751	4611	19254	245141	16366	187787	147061	141445	18.10
100<m_total<150	14291	4055	17313	62897	6744	47649	21893	24613	33.58
50<m_recoil<250	14092	3765	16793	40763	3674	26876	16802	14198	40.83

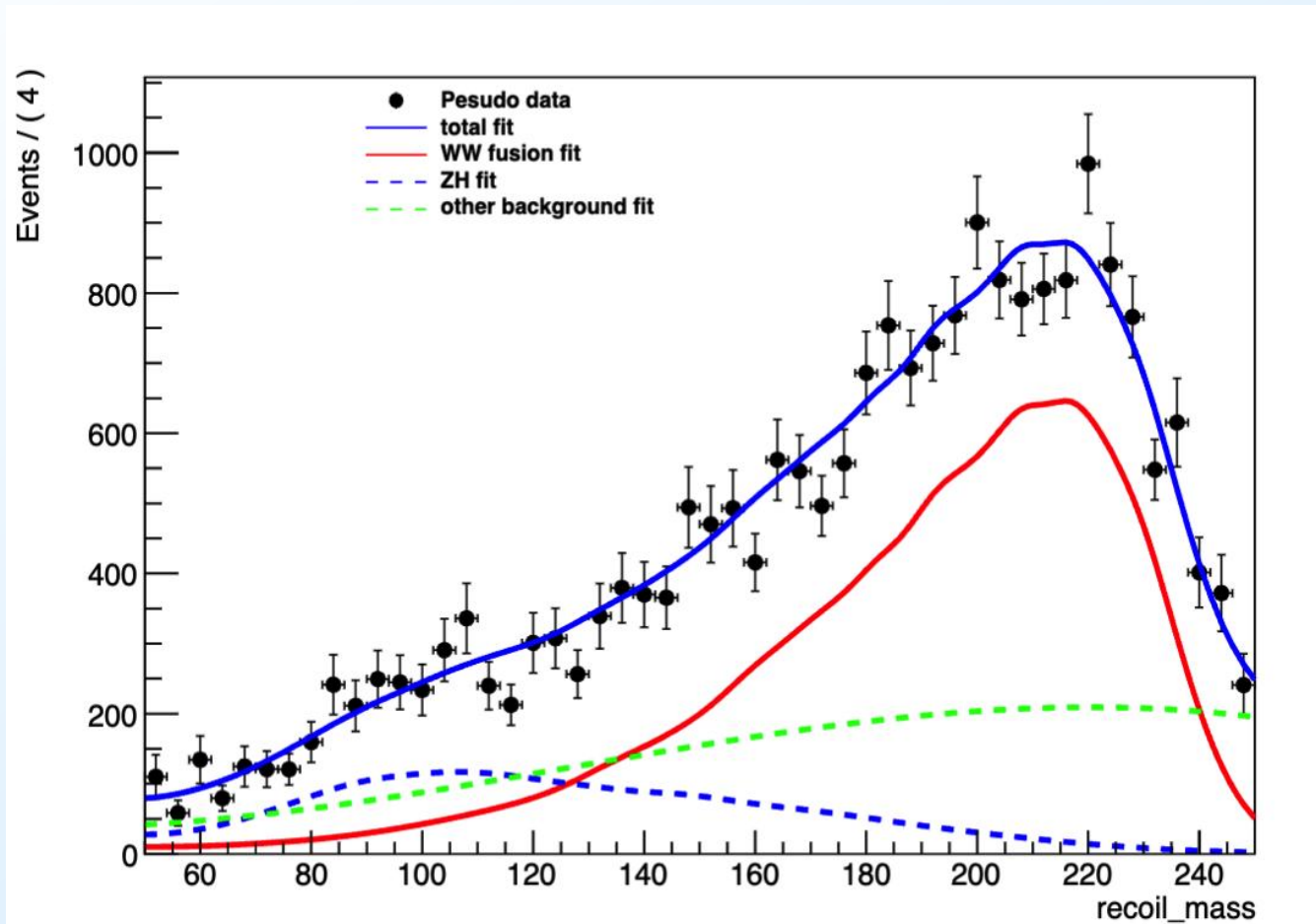
更新结果(lep_pt_veto)



• cut flow(在尽可能保留信号和ZH的情况下，去其它除本底)

cut	wwfusion	zn1n1h	nnhbb	qq	sw_sl0qq	ww_sl	sz_sl	zz_sl	$S/\sqrt{S+B}$
y12>0.10 y23<0.10 y34<0.02	13253	3094	15375	35478	2664	18774	13260	9833	42.91
-0.99<cosij<0.25	13006	2850	14899	26763	1955	12826	10593	6079	48.10
b_tag	11738	2572	13447	4840	19	122	1916	1099	80.16

b_tag(估计) (95%eff+1%bkg rejection)	0.9025	0.9025	0.9025	0.1808 5	0.0095	0.0095	0.1808 5	0.1808 5	
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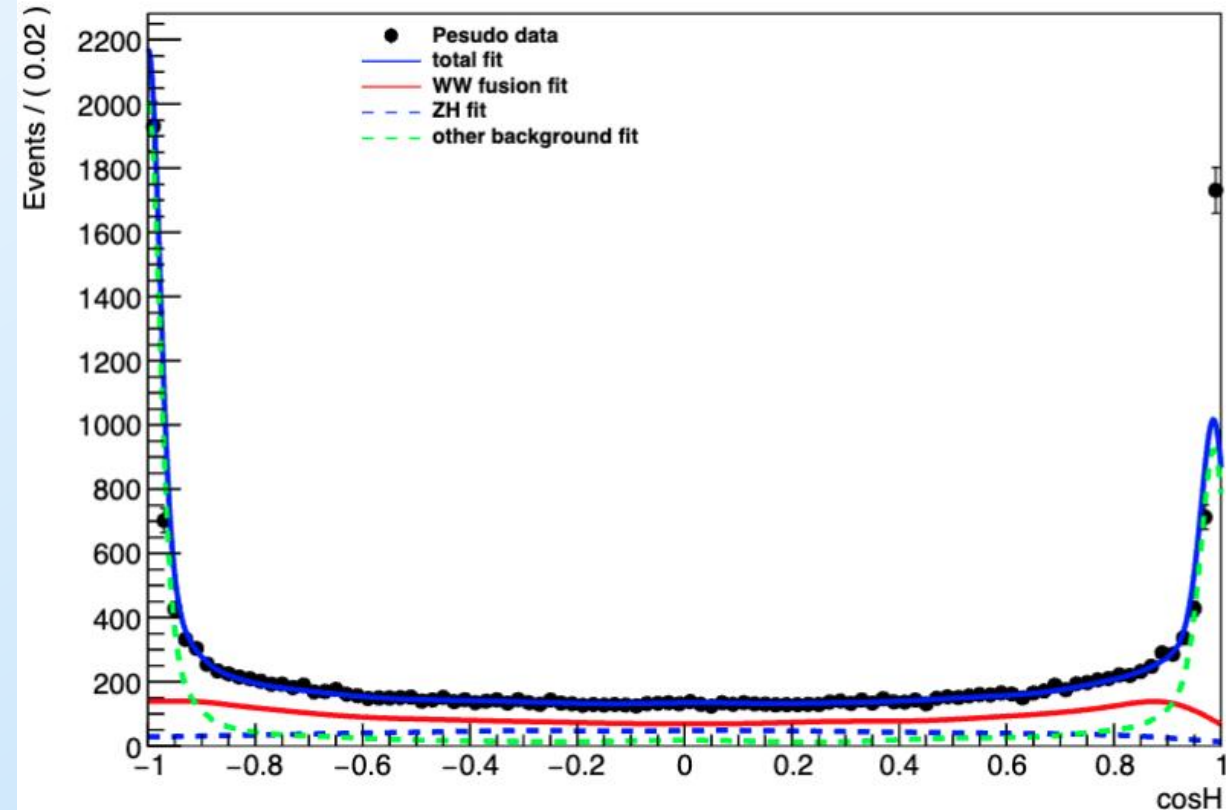
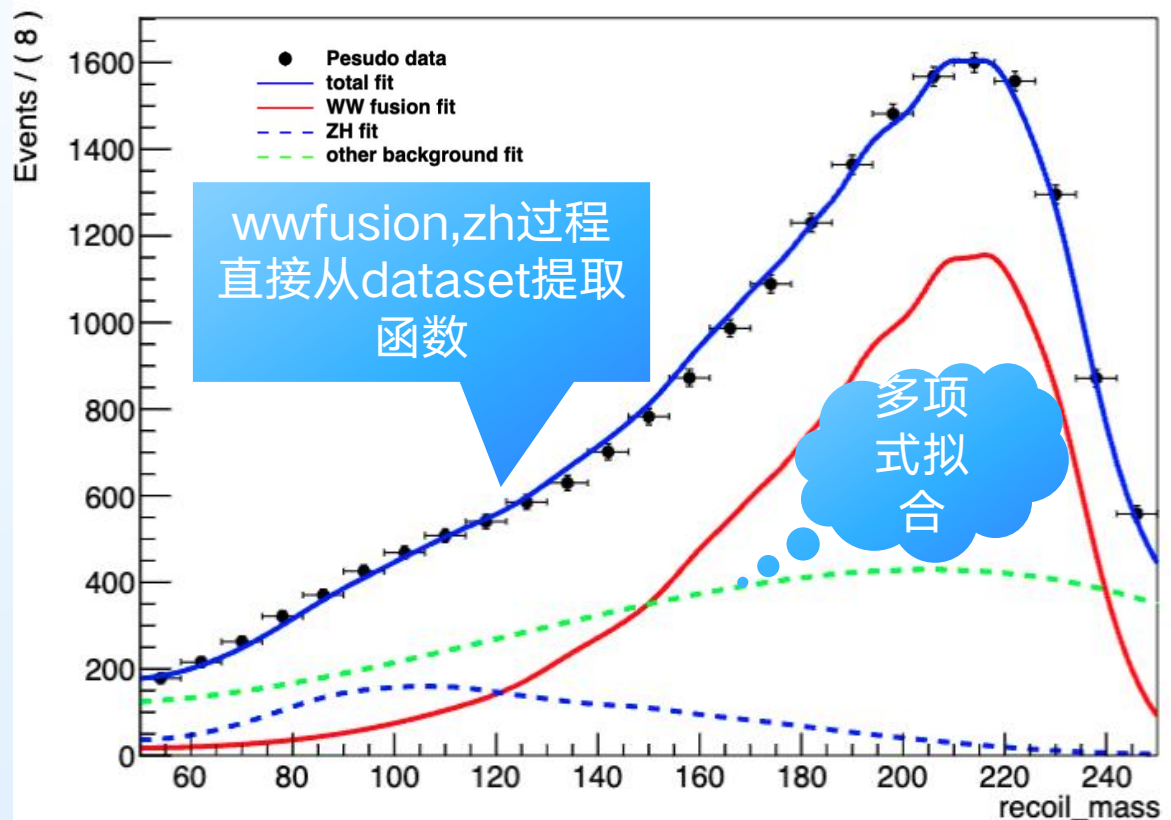


- ✓ 伪数据集跳动很大。
- ✓ 主要来源是otherbkg数据集跳动很大，主要原因是当前事例数不足。

- 解决办法：反冲质量的otherbkg数据集是从多项式拟合的函数中随机抽取的。

更新结果(lep_pt_veto)

➤ fit with cut



- Pseudo data=inclusive sample+2/4fermion background
- Other background=interference+2/4fermion background

Recoil_mass (2.93%)

N_others_bkg	=	7801.47	+/-	468.19	(limited)
N_wwfh_bb	=	10628.3	+/-	311.763	(limited)
N_znnh_bb	=	2034.62	+/-	203.194	(limited)

cosH (4.57%)

N_others_bkg	=	8207.53	+/-	130.431	(limited)
N_wwfusionh_bb	=	9237.98	+/-	422.483	(limited)
N_zn1n1h_bb	=	4000.89	+/-	366.28	(limited)

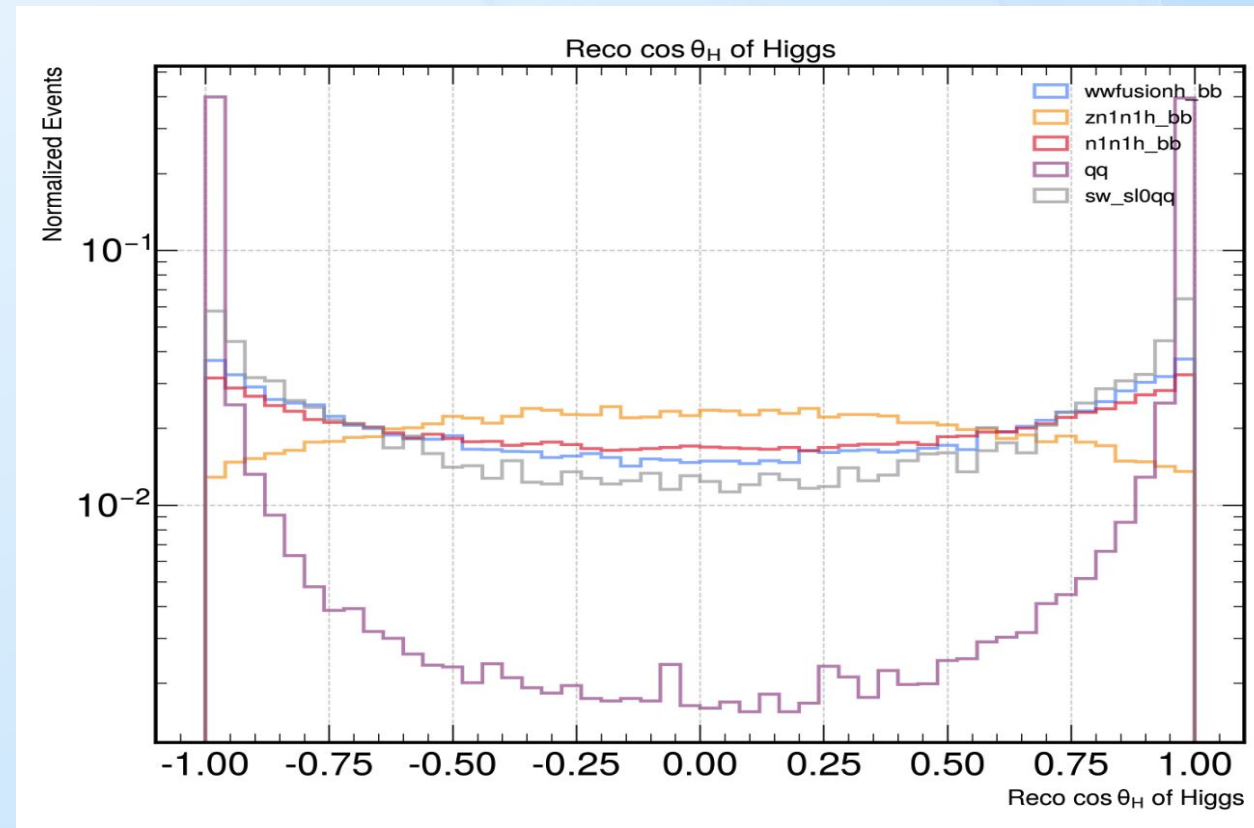
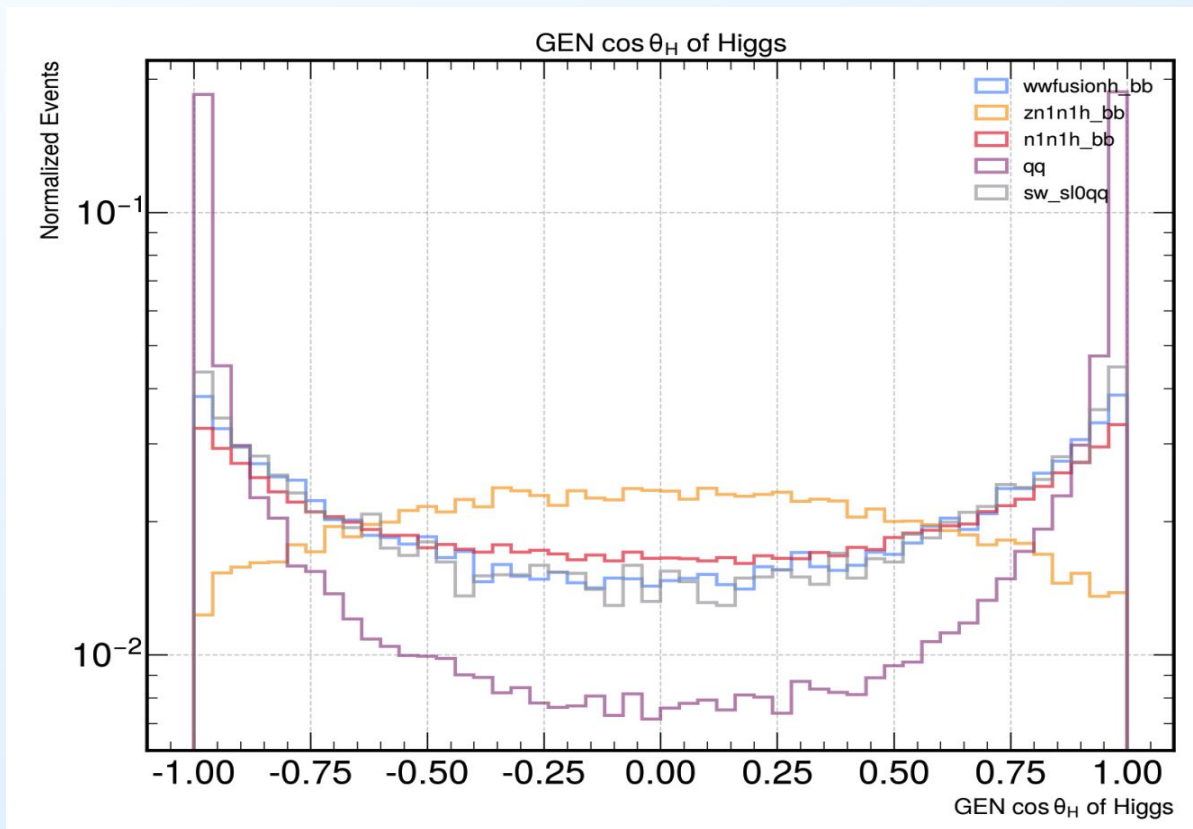


Back up

THANK YOU

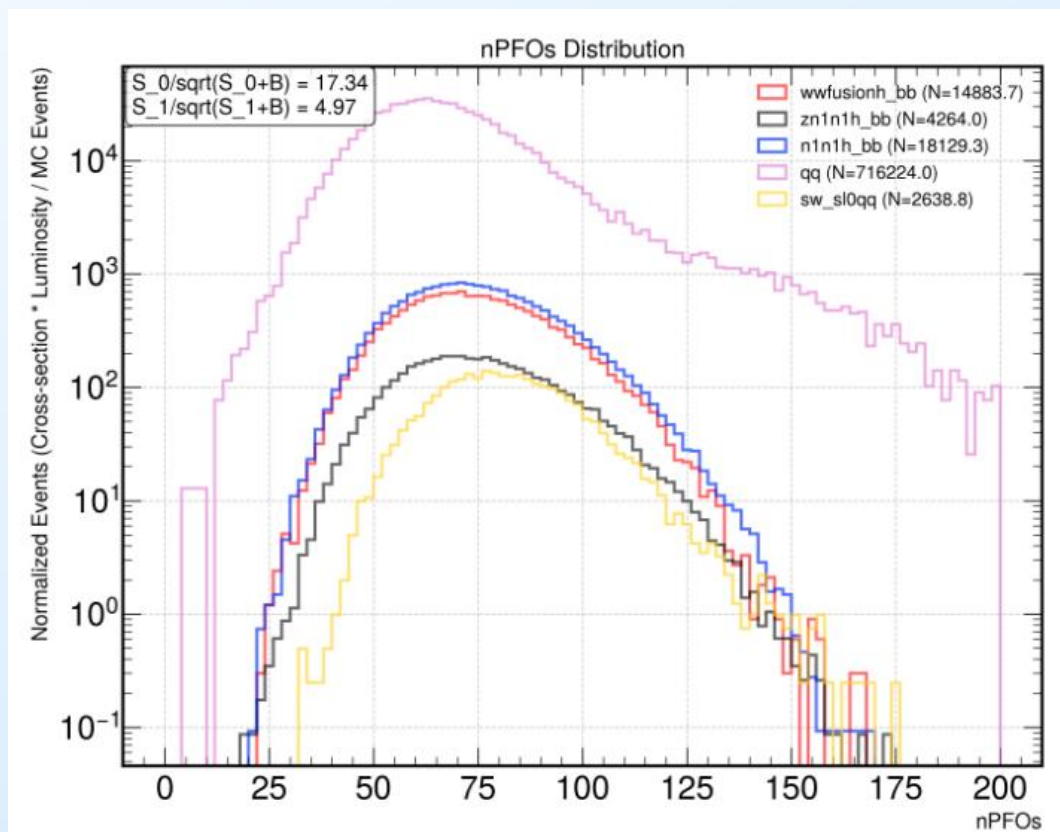
汇报人：侯瑛琦

➤ costheta of higgs

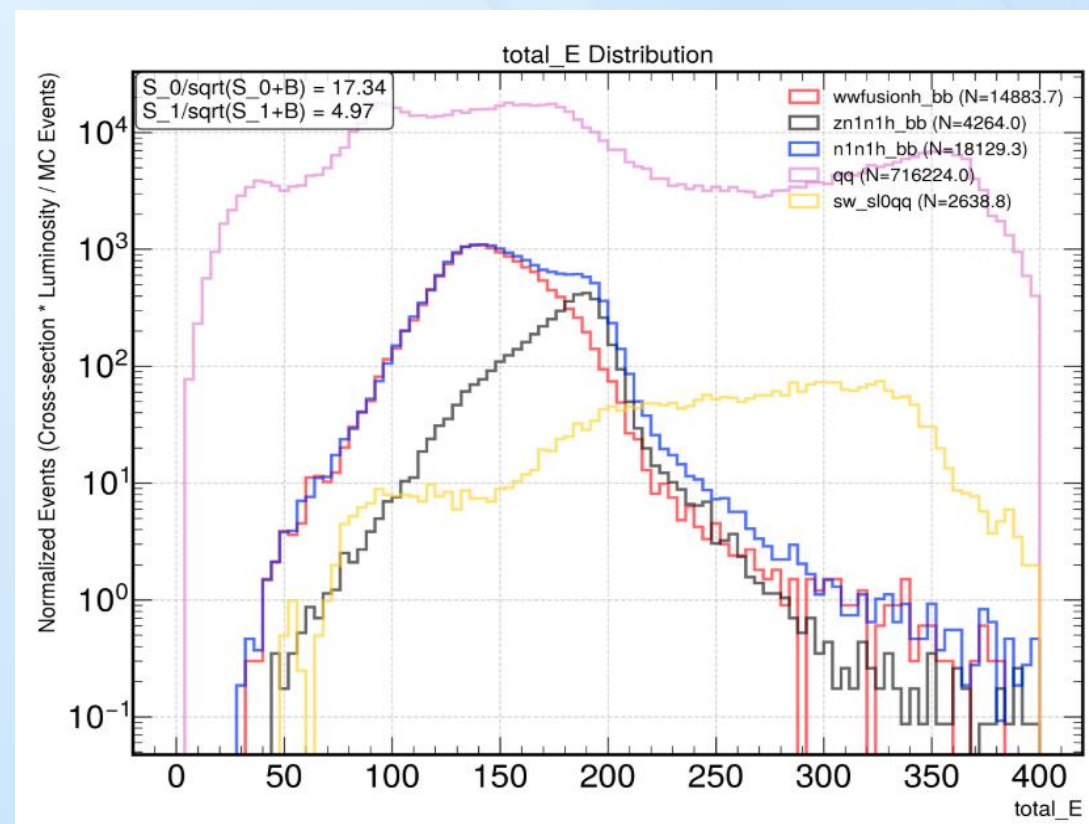


➤ cut相关变量分布（归一到亮度，no cut）

$30 < n\text{PFOs} < 180$



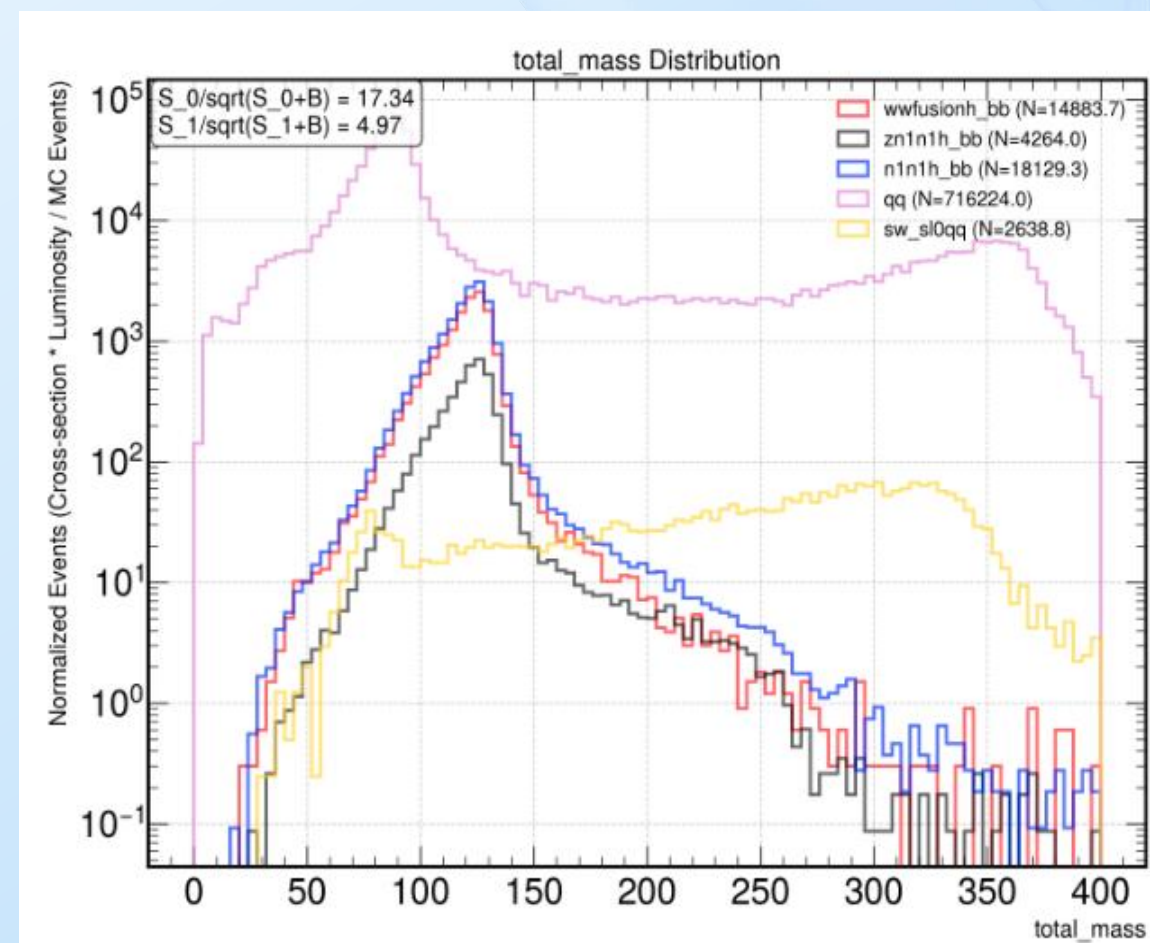
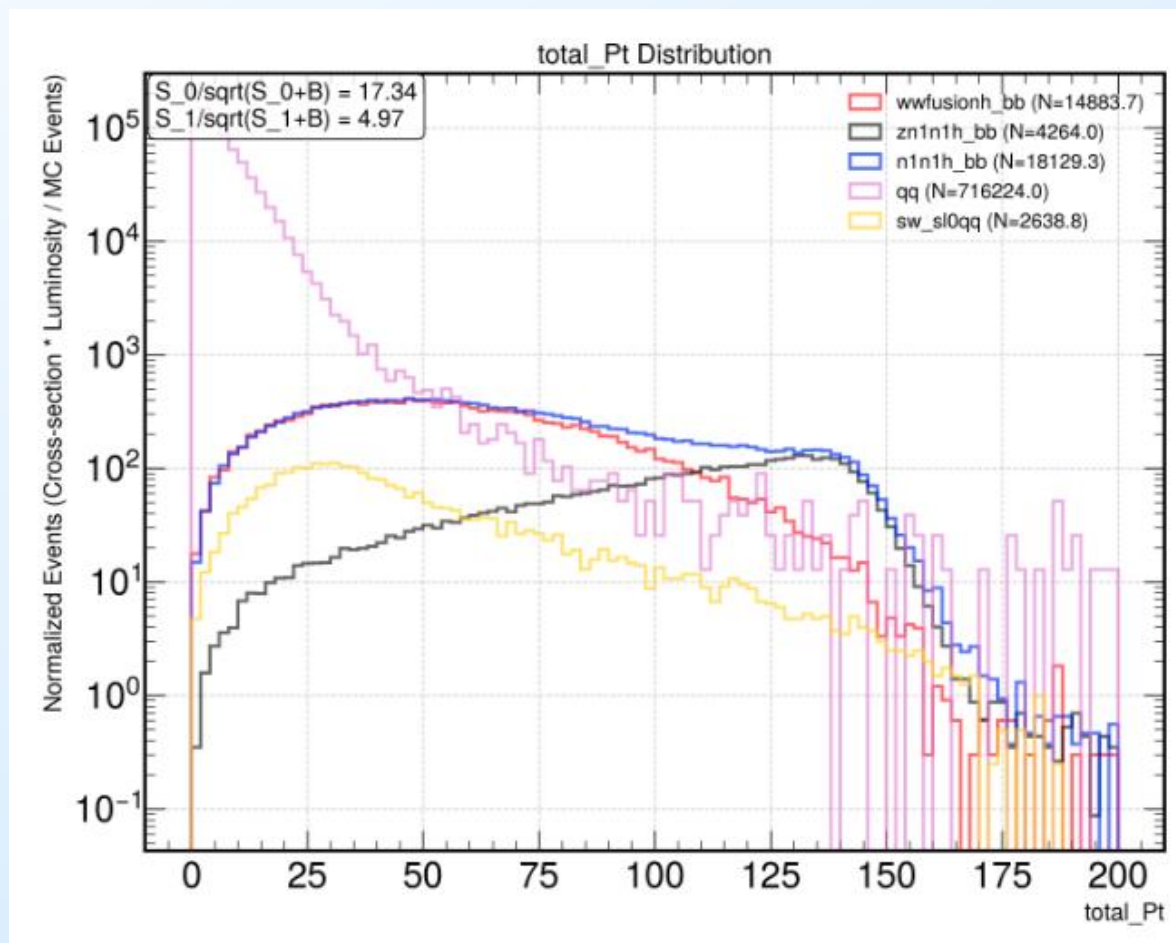
$100 < E < 250$



➤ cut相关变量分布 (归一到亮度, no cut)

$P_t > 10$

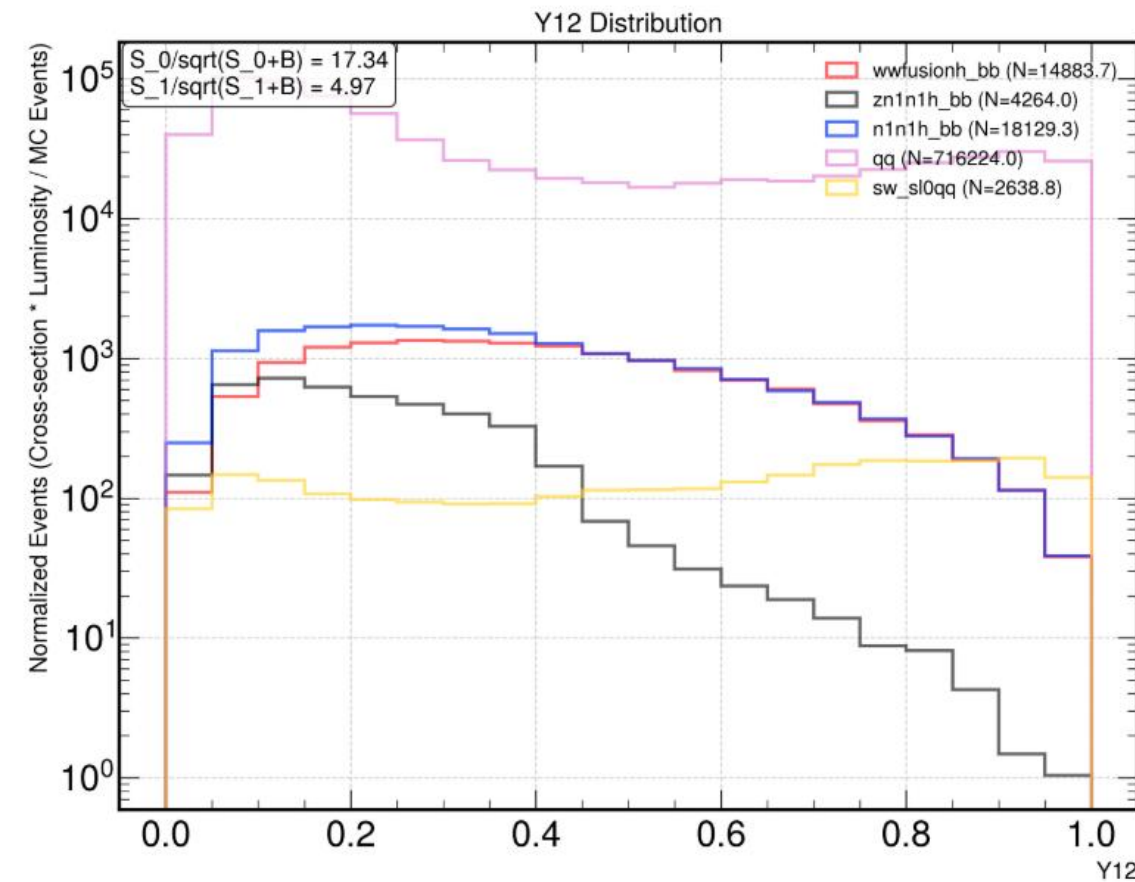
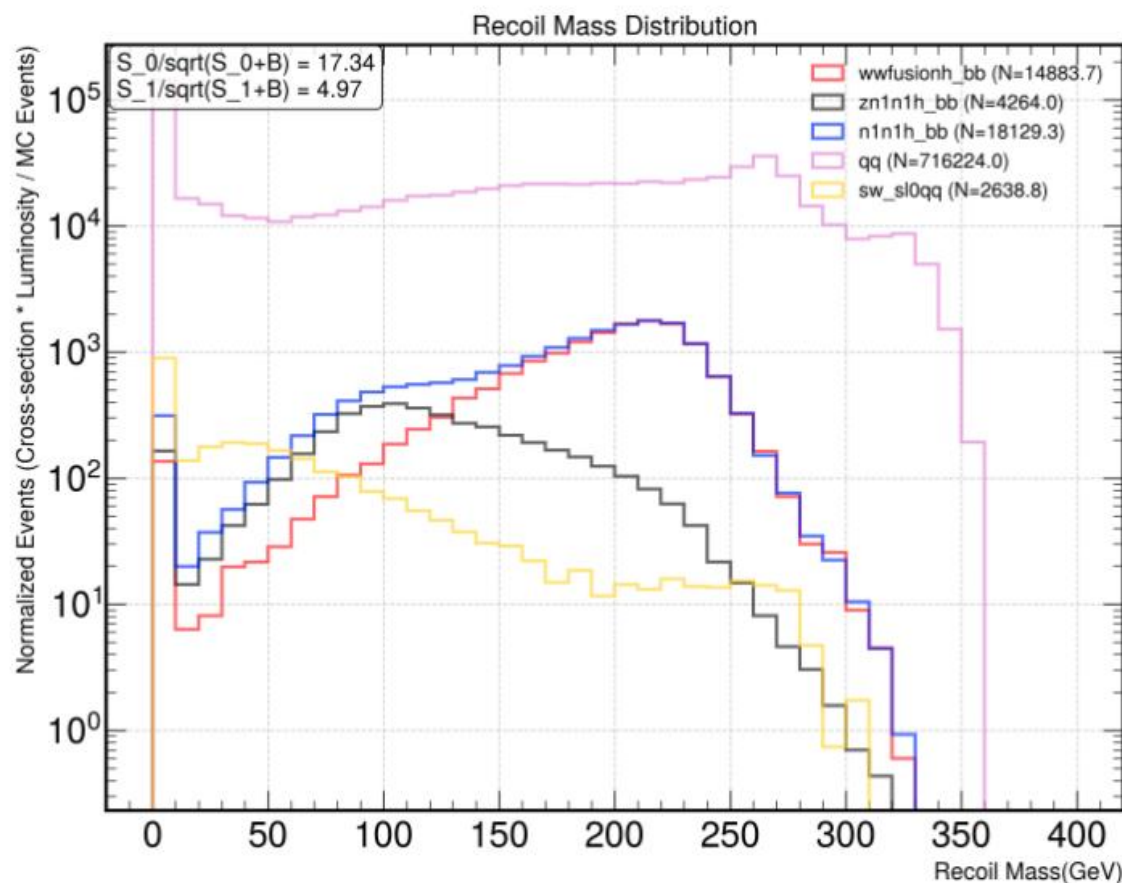
$100 < M < 150$



➤ cut相关变量分布（归一到亮度，no cut）

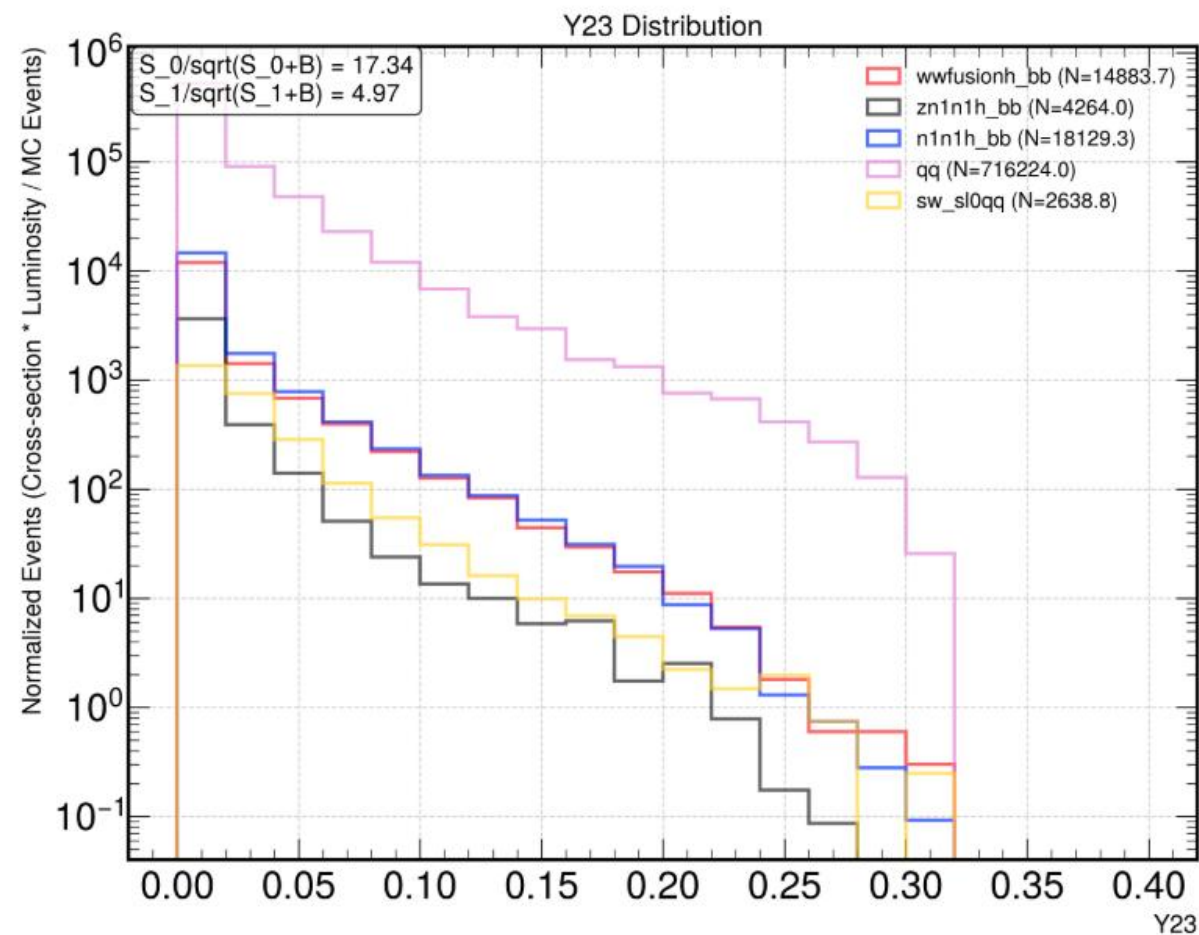
$50 < m_{\text{recoil}} < 250$

$Y_{12} > 0.1$

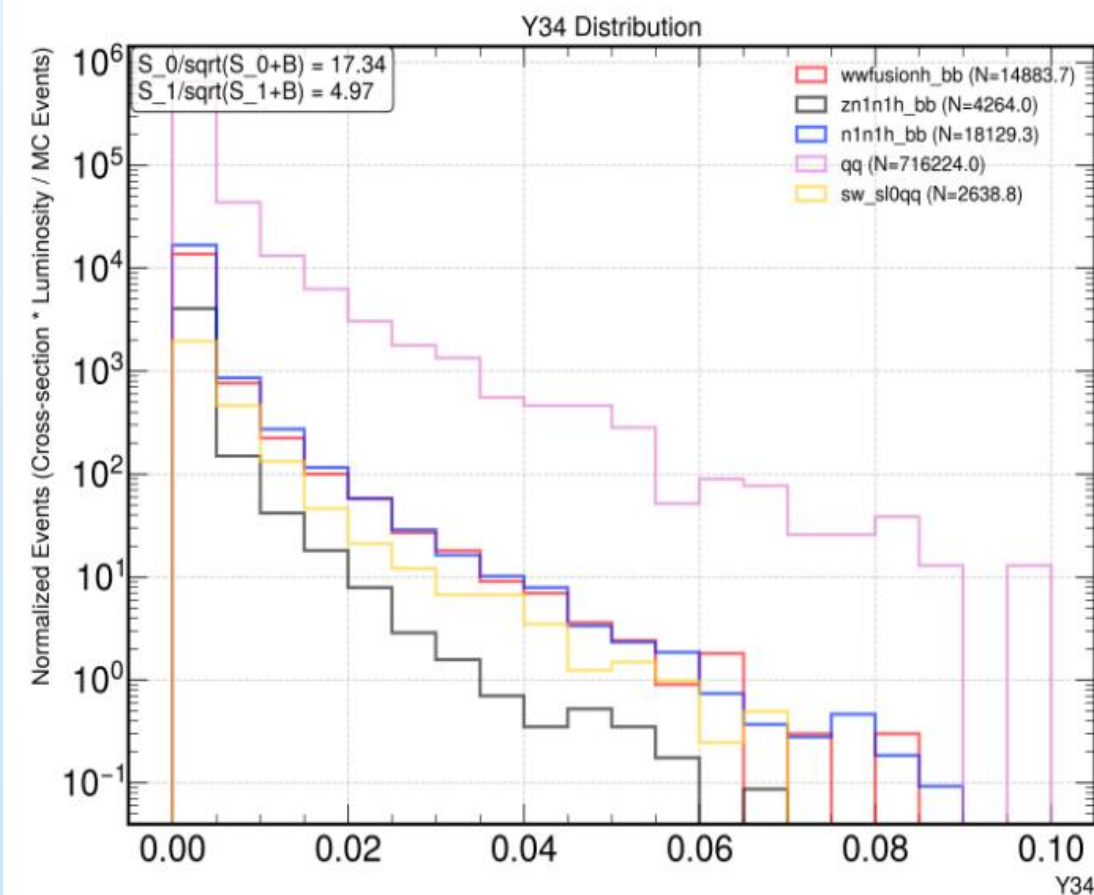


➤ cut相关变量分布（归一到亮度，no cut）

$Y_{23} < 0.10$



$Y_{34} < 0.02$



➤ cut相关变量分布（归一到亮度，no cut）

$$-0.99 < \cos i j < 0.25$$

