

CEPC v4 Update

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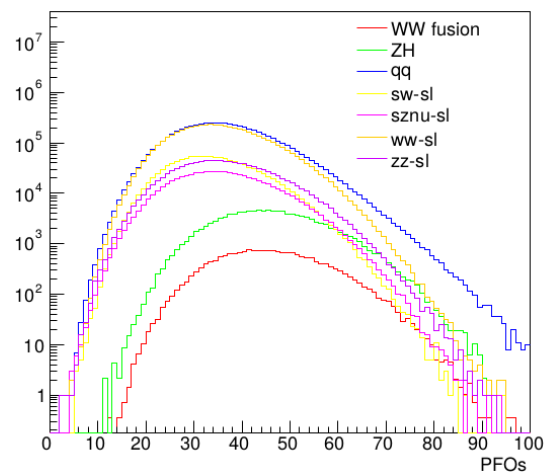
2018.6.14

Monte Carlo Samples

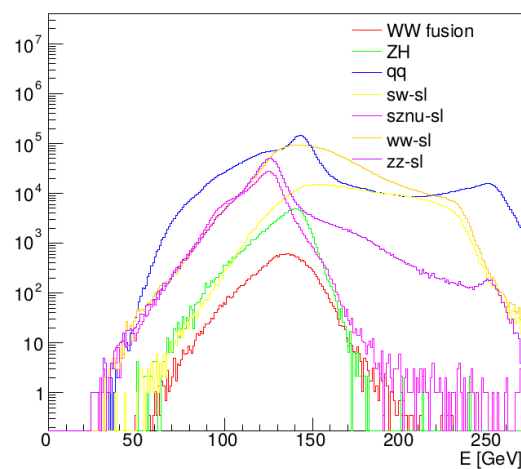
- From CEPCv1 to CEPCv4
 - Geometry update
 - B field: 3.5T $\rightarrow$ 3.0T
- Only Higgs sample regenerated for cepec v4
- 100k events generated for ZH and WW fusion respectively

Distributions

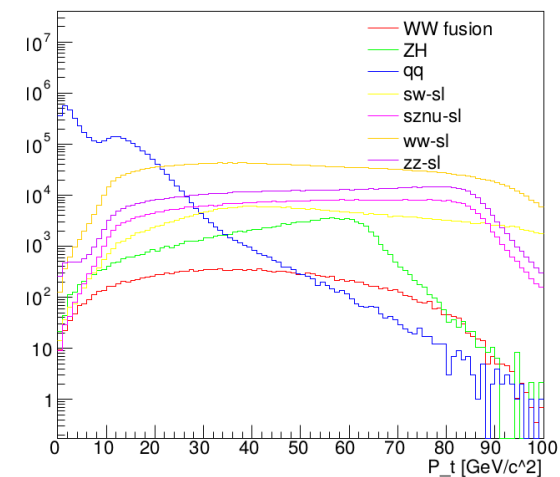
V4



PFOs

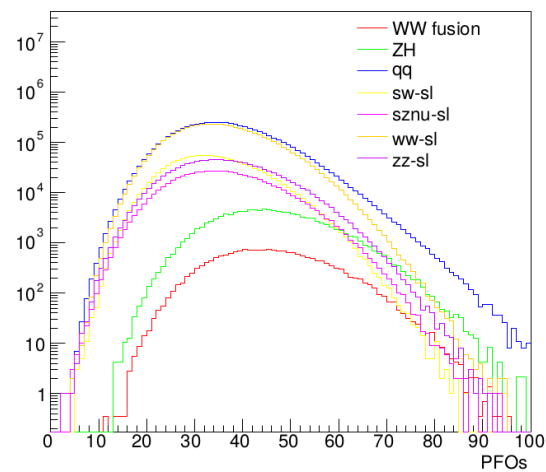


Energy

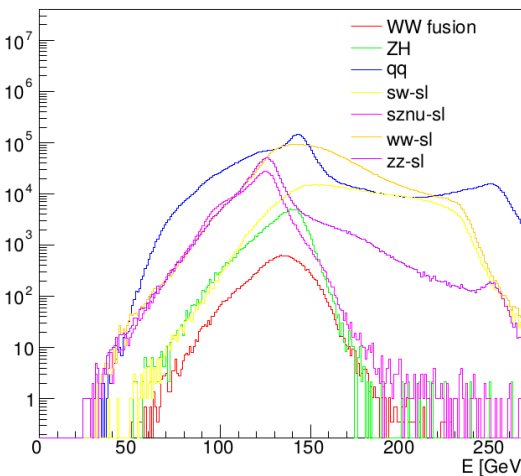


Pt

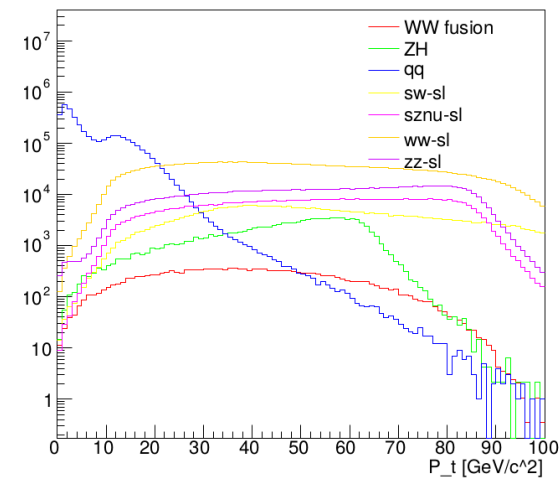
V1



PFOs



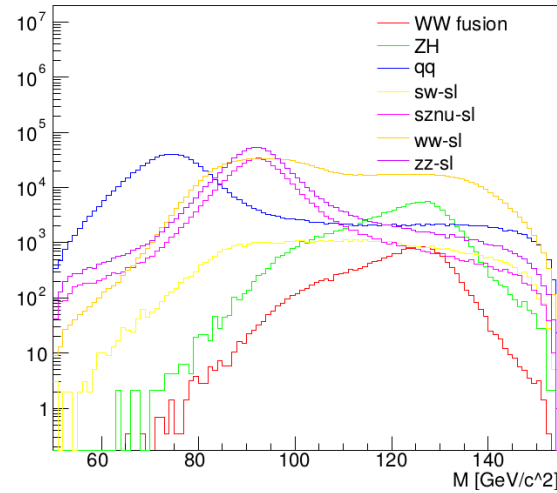
E [GeV]



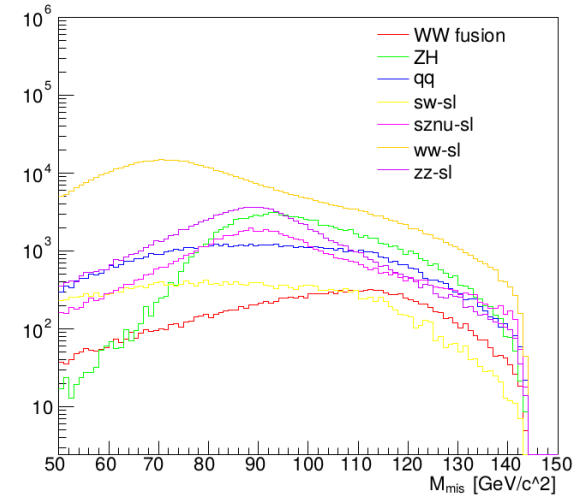
P_t [GeV/c²]

Distributions

V4

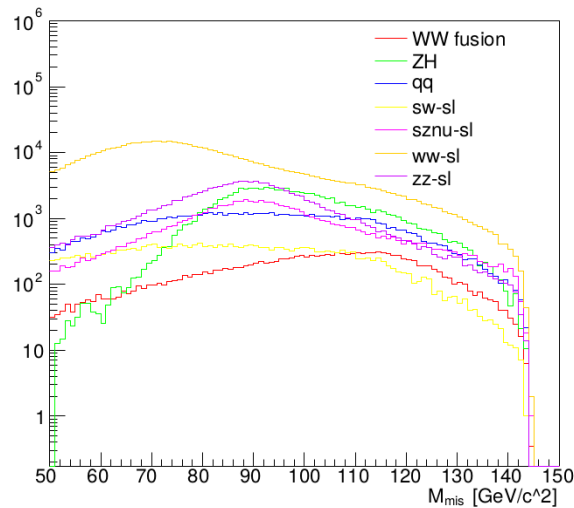
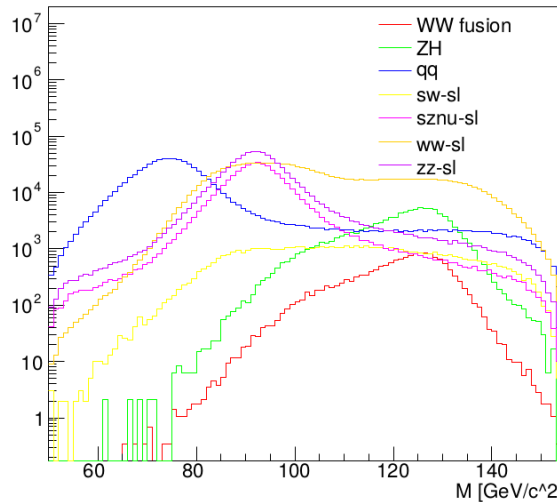


Mass



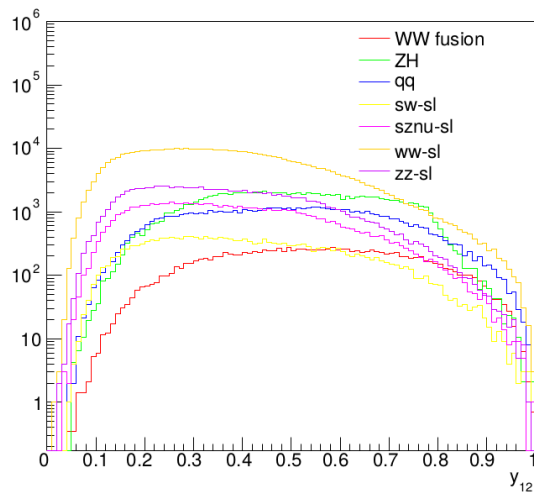
Recoil Mass

V1

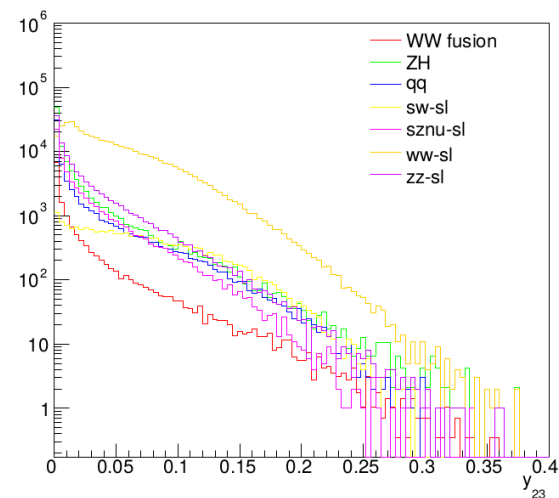


Distributions

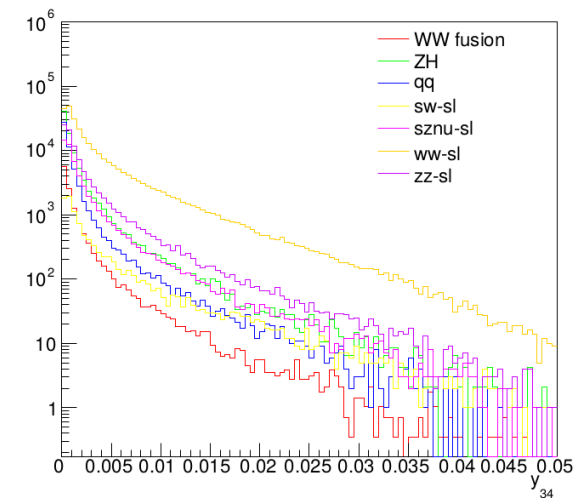
V4



y_{12}

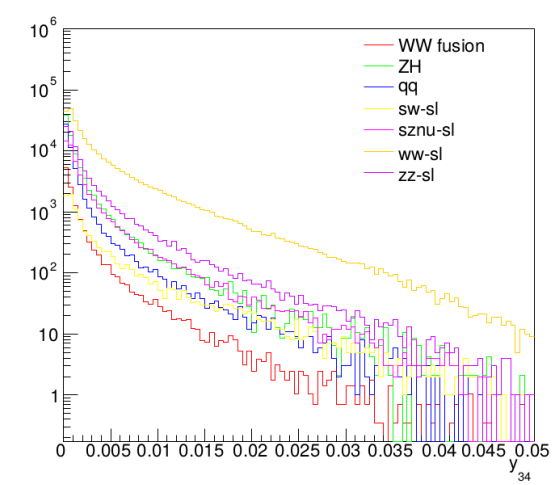
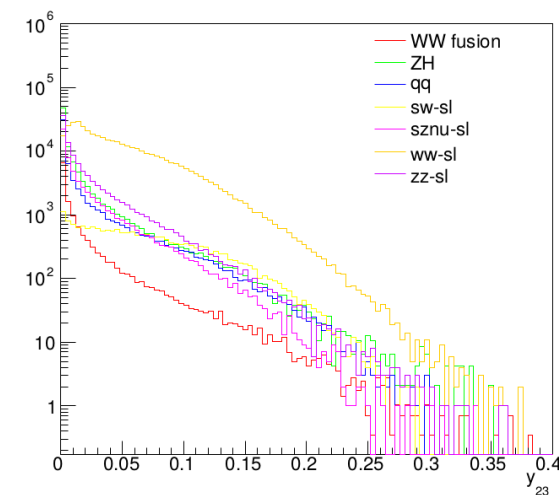
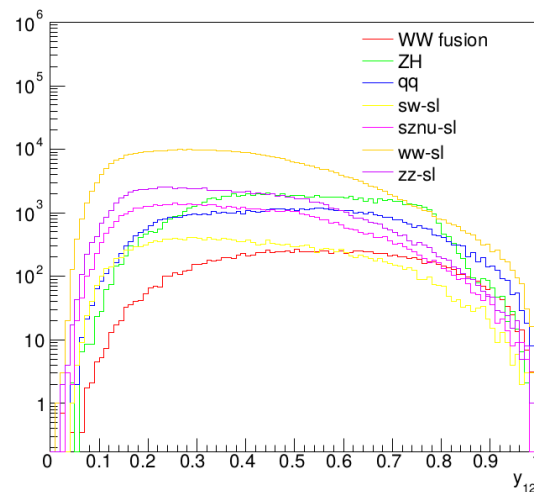


y_{23}



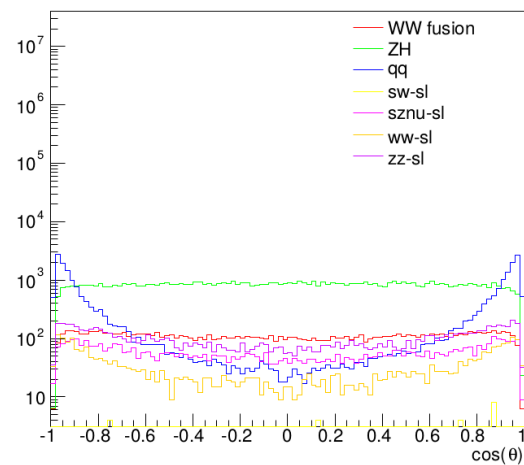
y_{34}

V1



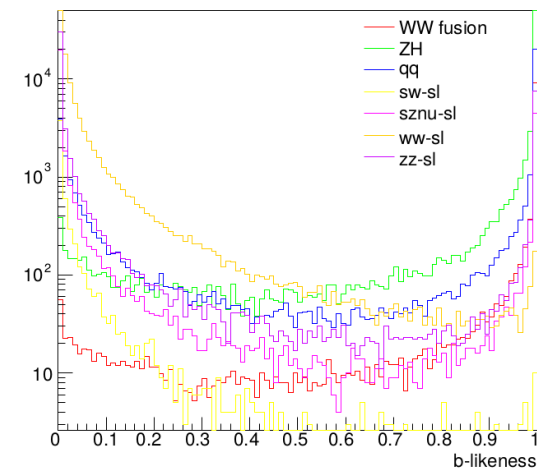
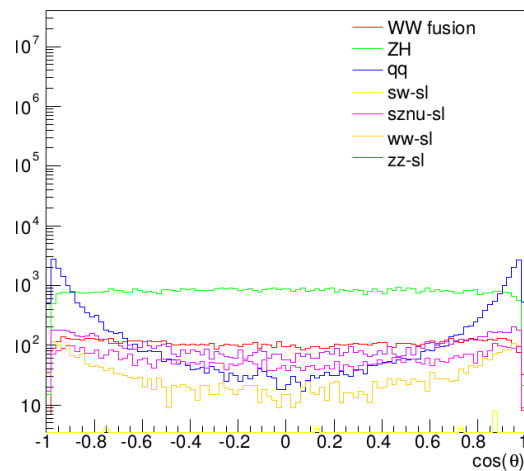
Distributions

V4

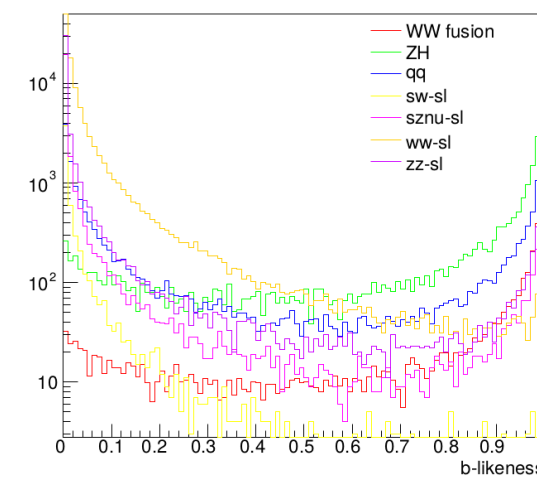


$\cos(\theta_{2 \text{ jets}})$

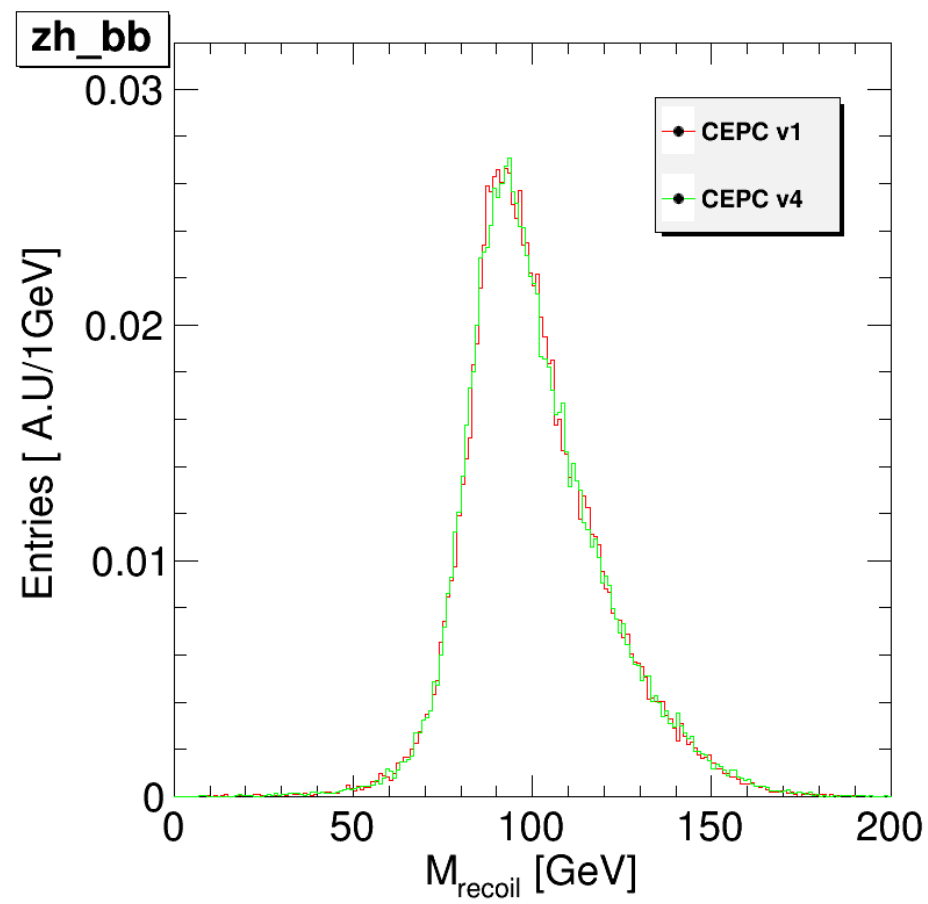
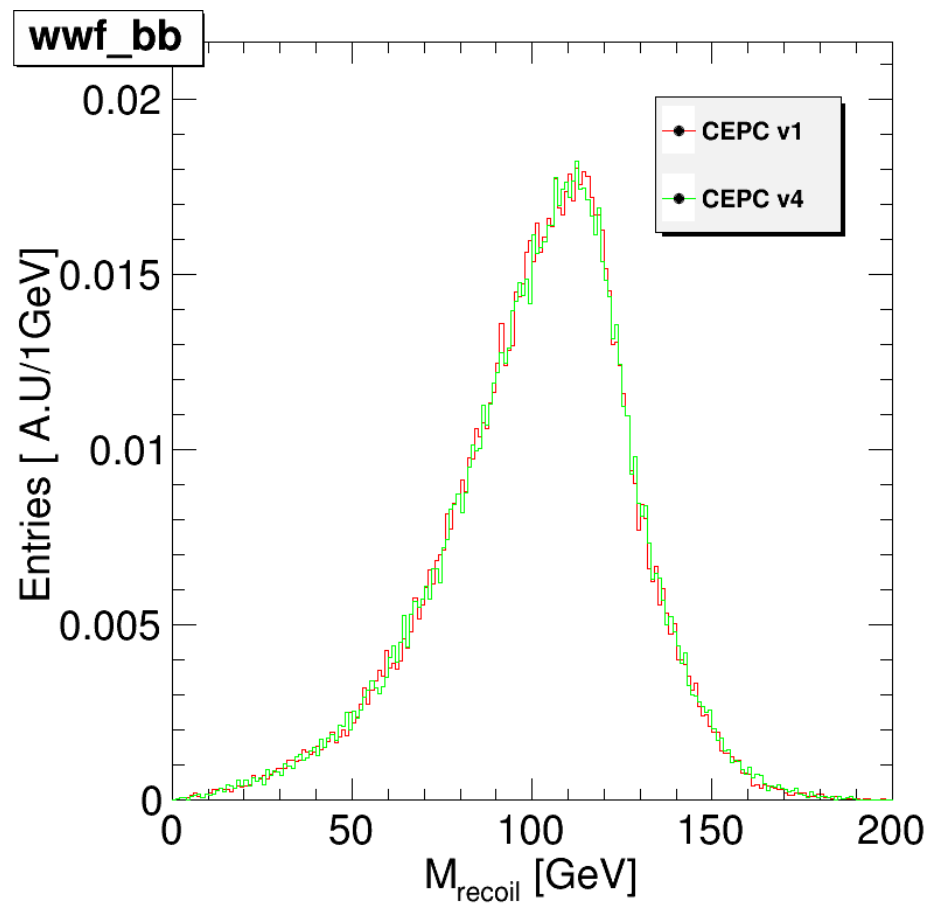
V1



B jets pair likeness



CEPCv1 vs. CEPC v4



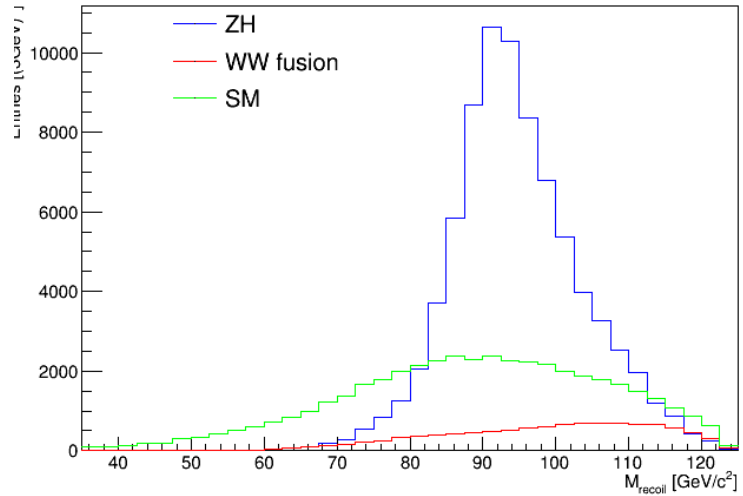
Area was normalized to be 1

Selection eff.

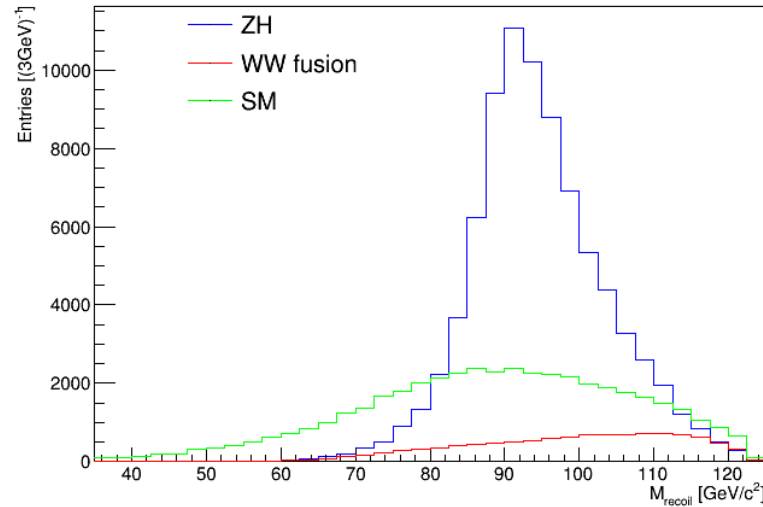
	v4		v1	
	WW fusion, H->bb	ZH, Z->vv, H->bb	WW fusion, H->bb	ZH, Z->vv, H->bb
PFO>20	19912	122073	20102	122403
105<Energy<155	17939	114926	18181	115656
Pt>13	16694	11663	16935	112297
Isolation lepton veto	15463	101951	14969	106993
100 < Mass < 135	13929	100289	13513	97766
65 < Recoil Mass < 135	13846	99750	13441	96172
Y12 && y23 && y34	12251	90976	11959	85453
$-0.98 < \cos(\theta_{2jets}) < -0.4$	11416	88548	11158	83308
B jets pair likeness > 0.4	10916	82597	10639	79623

Number were normalized to $5ab^{-1}$

Final fit Result



CEPC v1



CEPC v1

	WW fusion, H->bb	ZH fusion, H->bb	Uncertainties for WW fusion, H->bb
V1	10639	79623	3.10%
V4	10916	82597	3.05%

Number were normalized to 5ab^{-1}

No significant difference found!

Thanks!

Additional comparison

