Signal + BG

- MN85
- 95
- 100
- 110
- 120

- 2f_hadronic
- 4f_WW_hadronic
- 4f_WW_semileptonic
- 4f_ZZWW_hadroni
- 4f_ZZ_hadronic
- 4f_ZZ_semileptonic
- 4f_ZZnunu_semileptonic
- 4f_singleW_semileptonic
- 4f_singleZee_semileptonic
- aa_4f

Cut flow (eRpL)

- ILC 250 with ISR / BS
- $\mathrm{Pol}\,(e^+, e^-) = (+0.8, -0.3) : \mathcal{L} = 900\,[\mathrm{fb}^{-1}]$

ILD work in progress

	Signal Entries				
	M_N=85	M_N=95	M_N=100	M_N=110	M_N=120
No cut	48	48	39	19	3
e_{iso} #=2 && γ_{iso} #=0 && μ_{iso} #=0	10	16	13	6	1
Same sign ($e_{iso1} \times e_{iso2} = 1$)	5	8	6	3	0

Cut flow (eRpL)

- ILC 250 with ISR / BS
- $\mathrm{Pol}\,(e^+, e^-) = (+0.8, -0.3) : \mathcal{L} = 900\,[\mathrm{fb}^{-1}]$

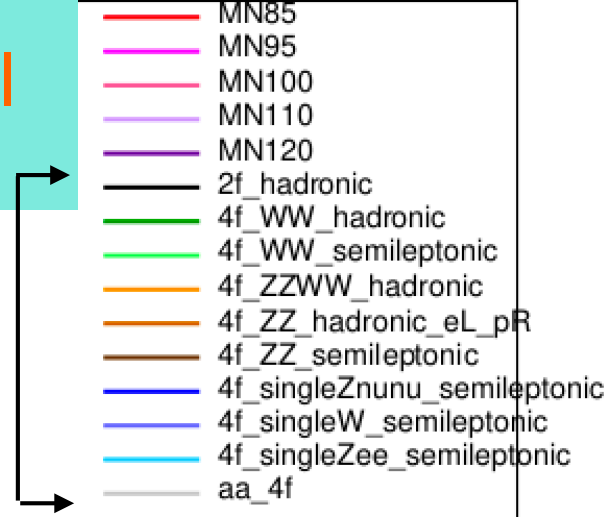
ILD work in progress

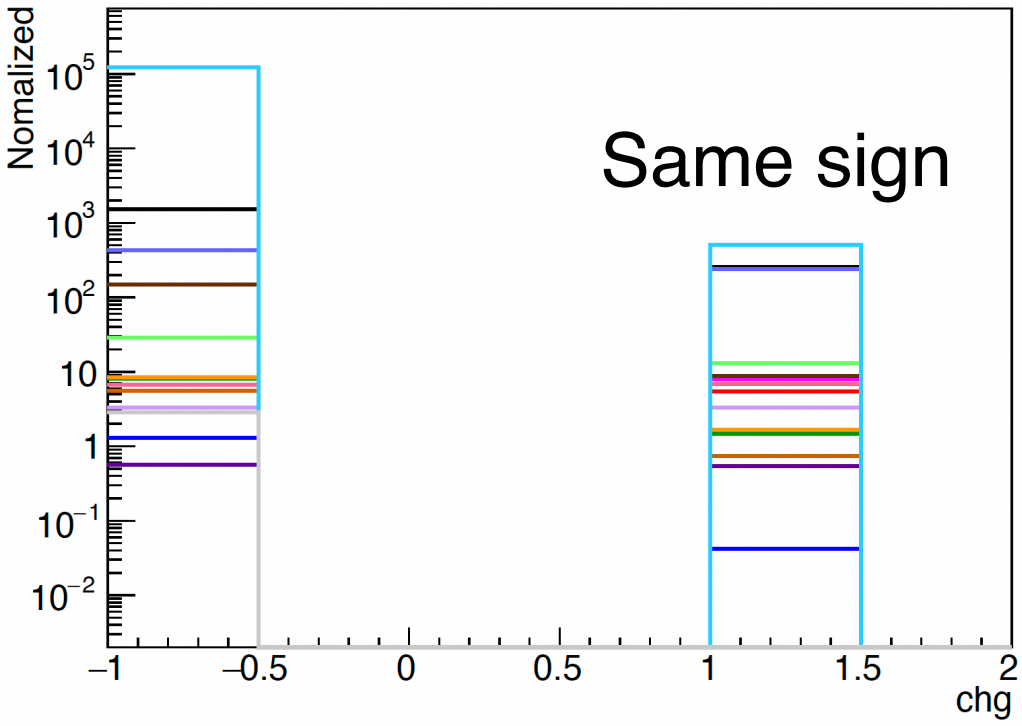
	BG Entries									
	2f_hadronic	4f_WW_hadronic	4f_WW_semileptonic	4f_ZZW_hadroni	4f_ZZ_hadronic	4f_ZZ_semileptonic	4f_ZZnu_semileptonic	4f_singleW_semileptonic	4f_singleZee_semileptonic	aa_4f_zz_sl
No cut	304775	1795	20893	1673	1359	8836	89	380120	778343	26
e_{iso} #=2 && γ_{iso} #=0 && μ_{iso} #=0	1766	9	41	10	6	157	1	667	120939	0
Same sign ($e_{iso1} \times e_{iso2} = 1$)	252	1	12	1	0	8	0	240	496	0

Only precut

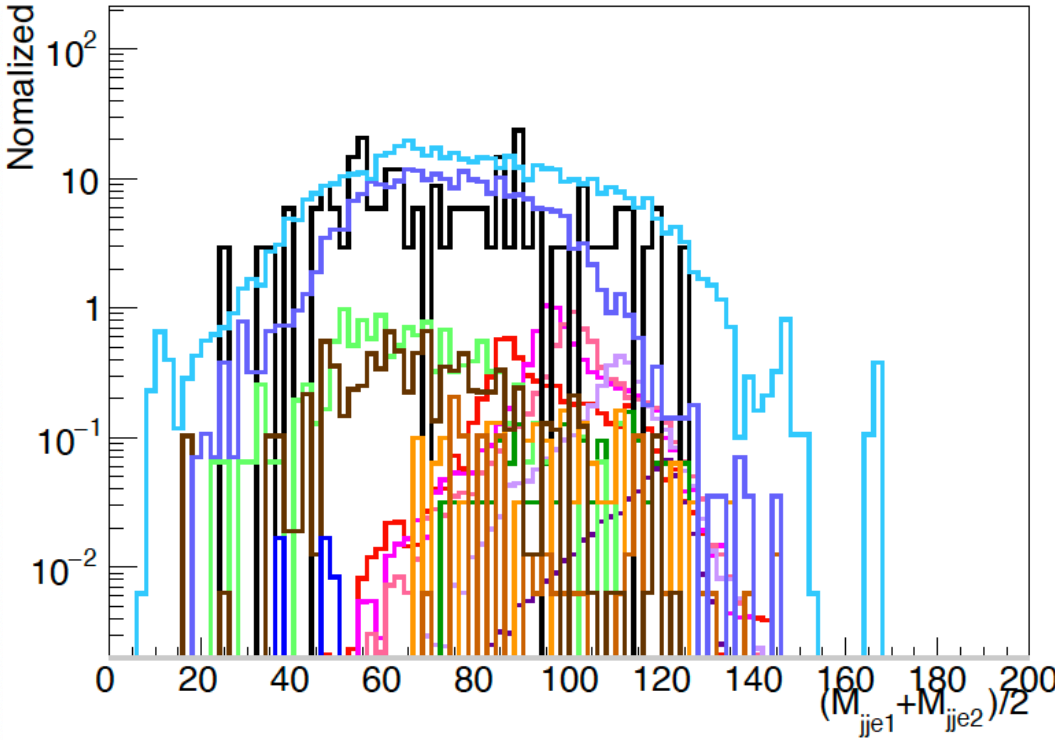
signal

BG



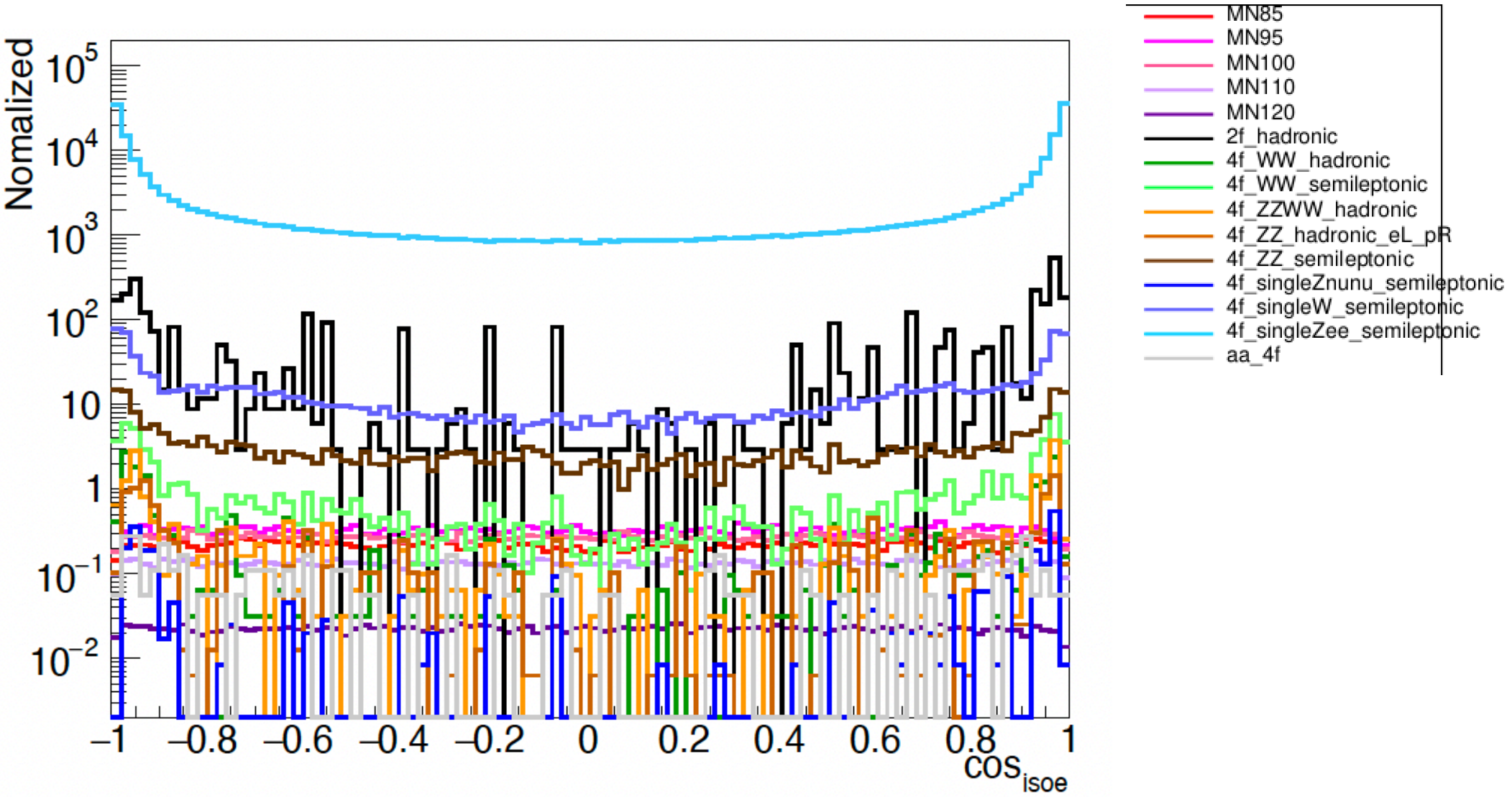


Reconstructed RHN



cos_isoe

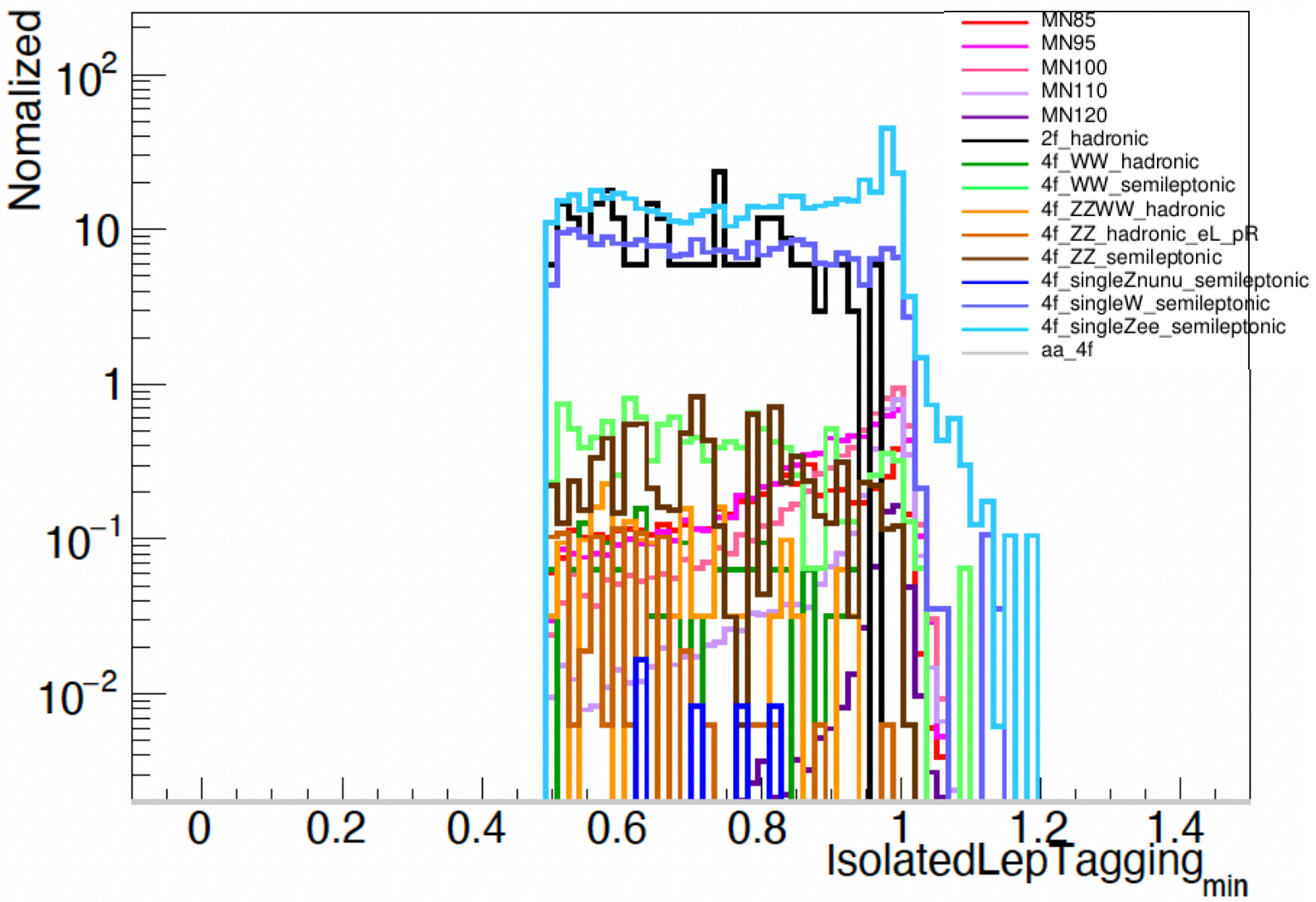
After precut



$|\cos\theta_{isoe}|<0.95$

Isolated Leptagging

After precut



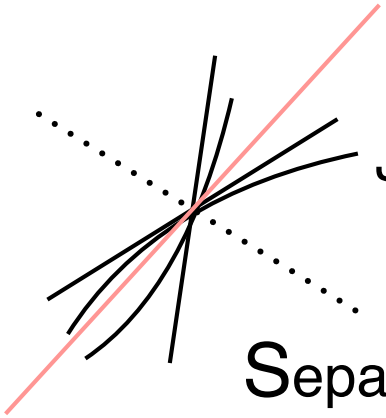
IsolatedLepTagging > 0.9

Thrust T

After precut

One of kind of event-shape variables

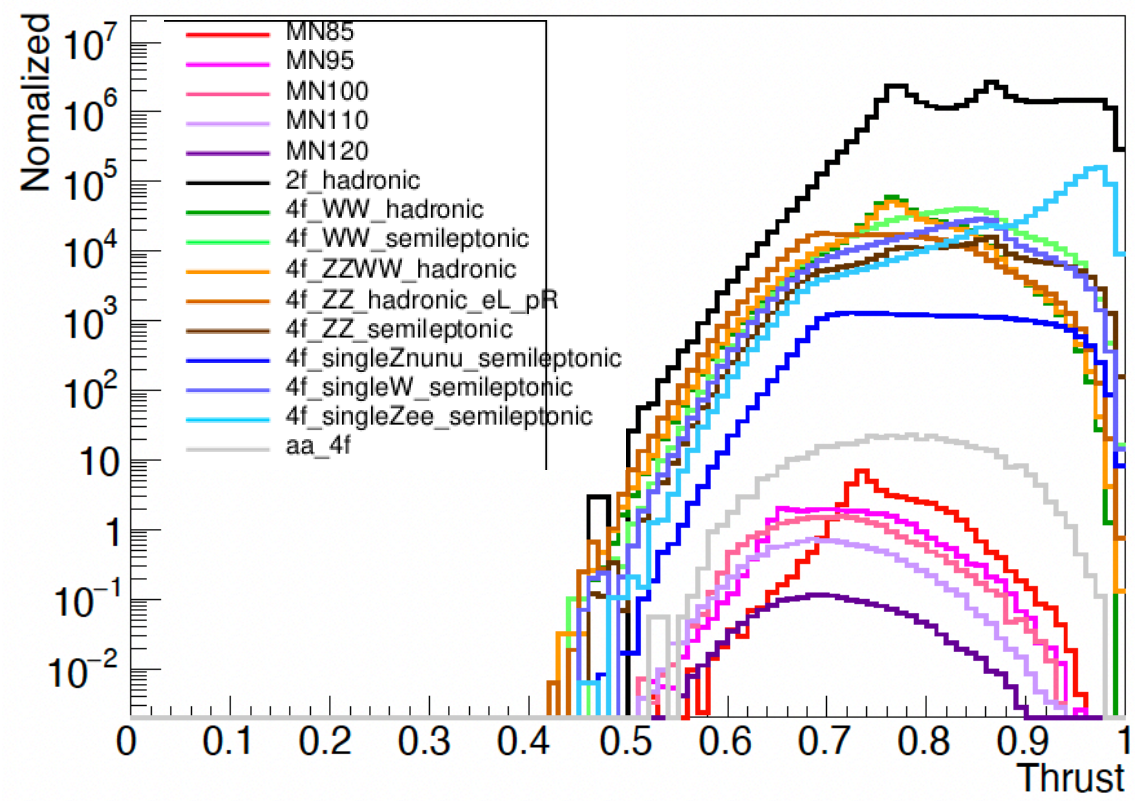
n_T:thrust axis



Jet

Separte particles into two jets

$$T \equiv \max \frac{\sum_j^n |p_j \cdot n_T|}{\sum_i^n |p_i|}$$

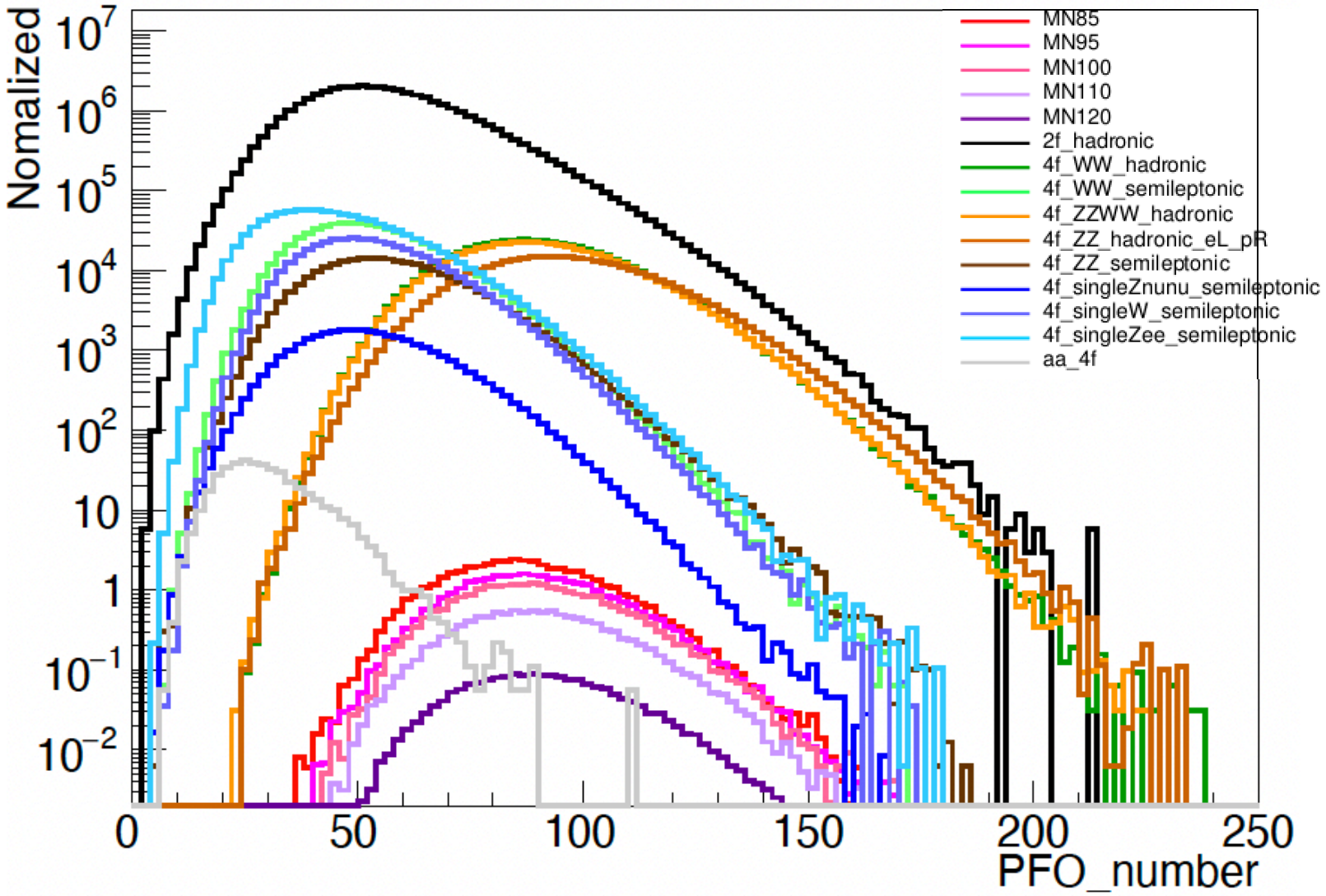


n_T:unit vector
P: momentum of each particle

Thrust < 0.95?
2f events exclude usefull

PFO number

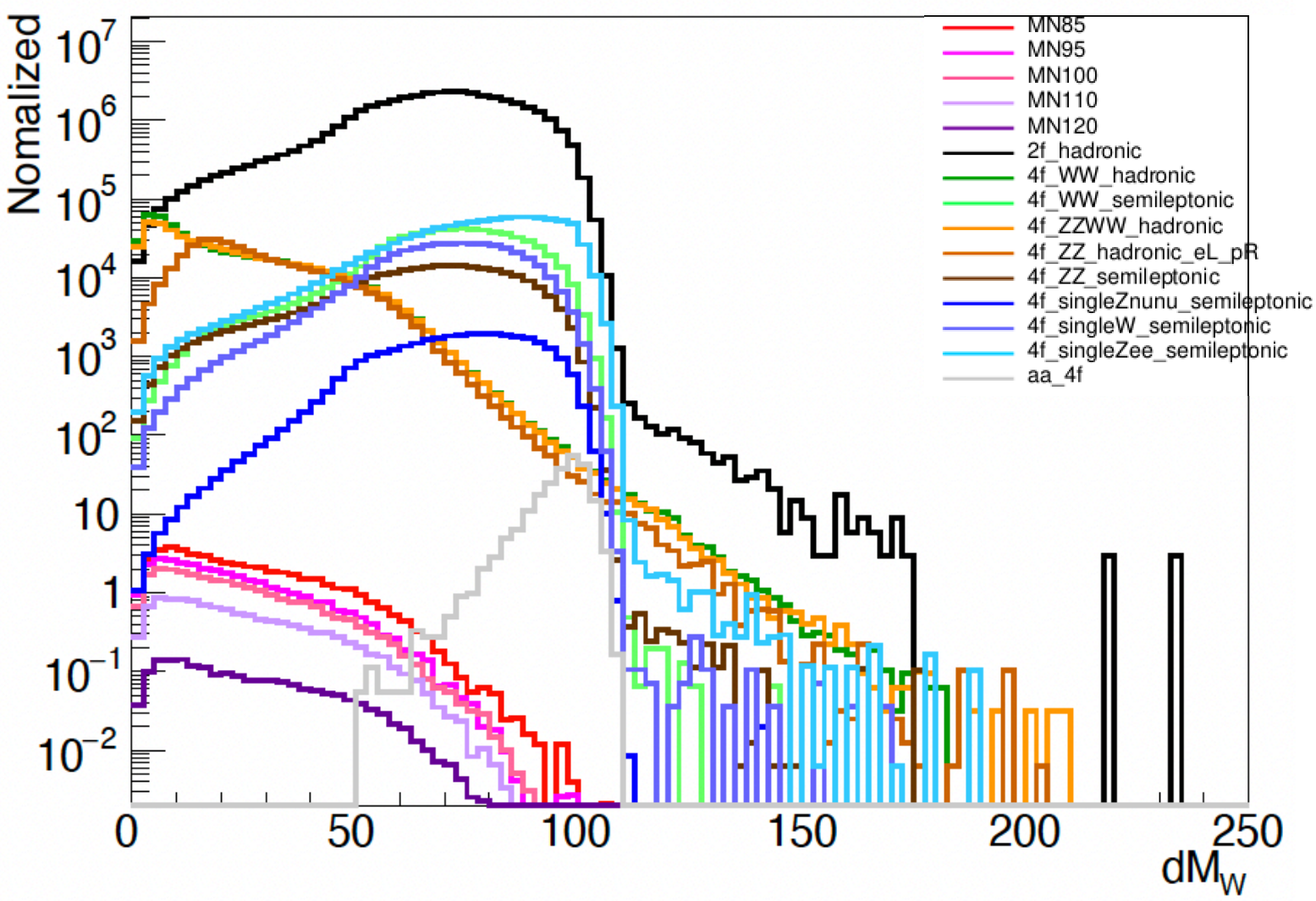
After precut



dMW

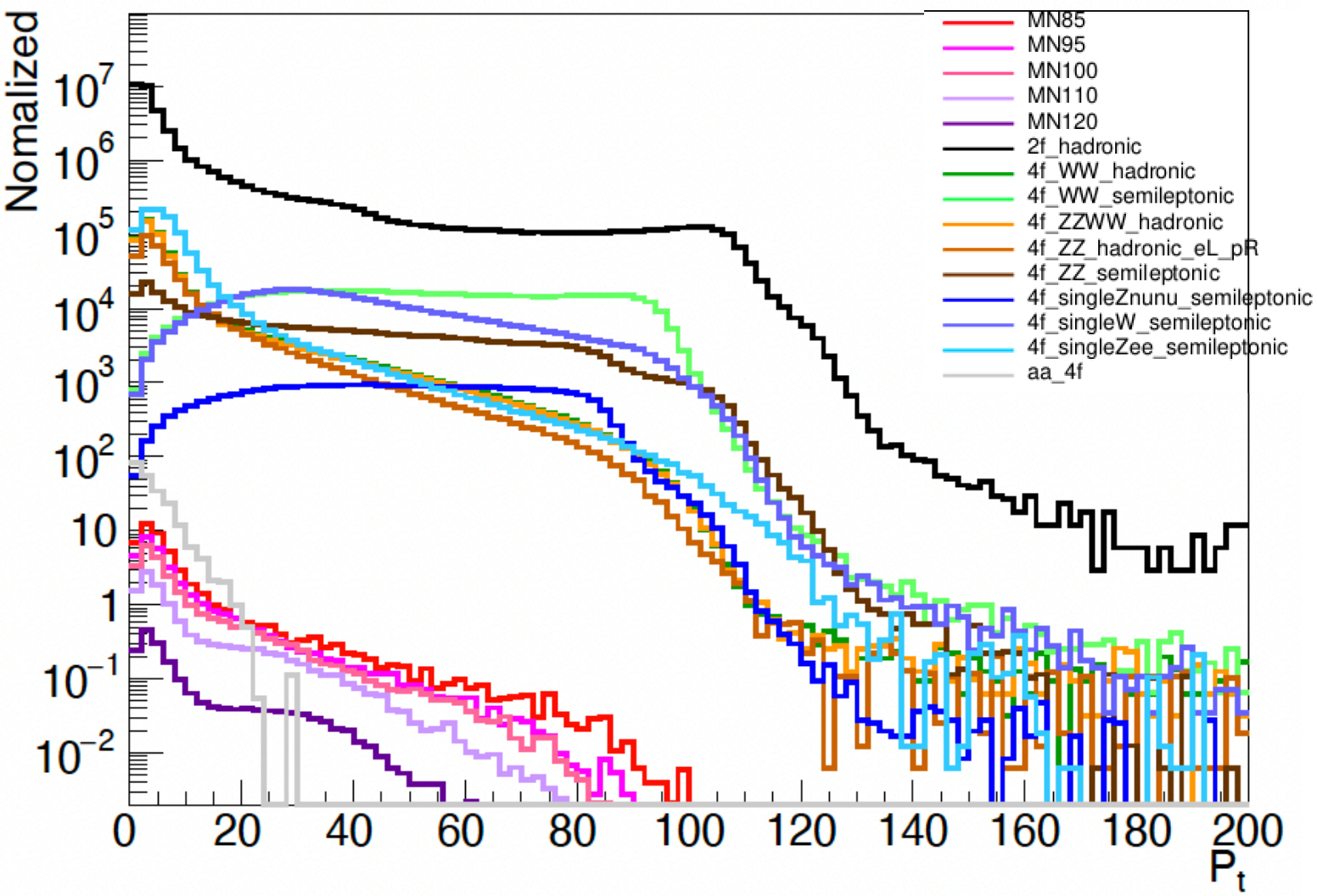
After precut

$$F_1 = (M_{jj1} - M_w)^2 + (M_{jj2} - M_w)^2 \longrightarrow dM_W = \sqrt{(M_{jj1} - M_w)^2 + (M_{jj2} - M_w)^2}$$



Total visible tansverse momentum

After precut



Summary & to do 7/1

To do

- Imposing cut condition

-> Next general meeting

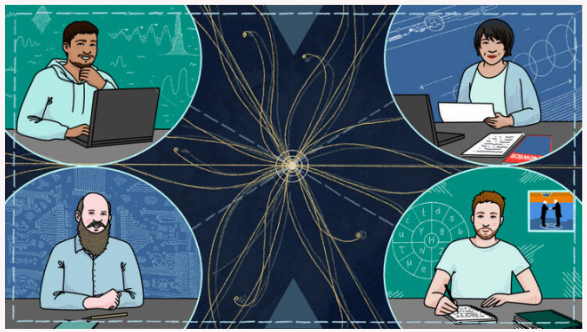
- Preparing Snowmass poster

- Submitting abstract JPS

Other report

- Short interview at Symmetry magazine

- Pass PhD examination of UPSaclay
  From this autum I will go to France



06/21/22

Reverberations of the Higgs

The discovery of the Higgs boson inspired young people around the world to pursue a career in science and technology.