The Study on Right-handed neutrino in extra dimension & Model Identification @1TeV

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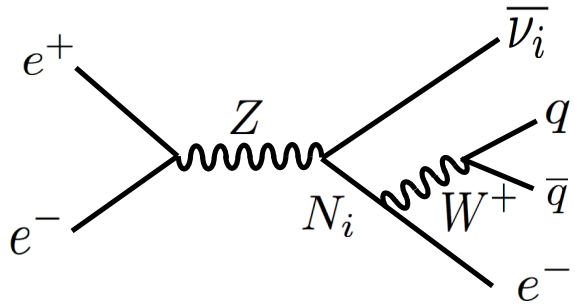
The Study on Right-handed neutrino in extra dimension

- tt event was included in the background about both the electron and muon mode

tt event cut (electron mode)

tt event is included in the background about electron mode



Reduction table

	signal	WW	ZZ	tt
before cut	6808	330000	81300	265500
lepE > 10 lepE <100	3283	70840	4854	96240
60 < W mass < 100	2712	56276	395	1555
170 < W energy < 260	2199	45848	287	293
90 < N mass < 110	2054	671	104	0
efficiency	30.2%	0.2%	0.1%	0.0%

tt event is rejected completely

tt event cut (muon mode)

tt event is included in the backgroundabout muon mode

Reduction table

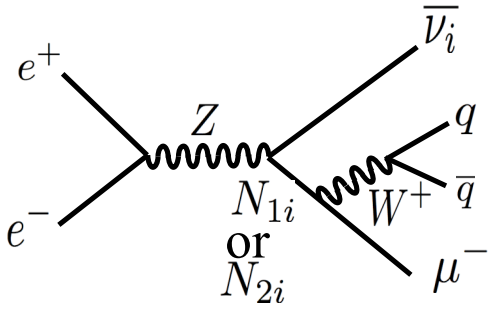
	signal	WW	ZZ	tt
before cut	7875	330000	81300	265500
lepE > 10	5322	268139	10519	115510
60 < W mass < 100	4711	226146	398	2257
170 < W energy < 260	4107	93244	283	330

1st KK mode

90 < N mass < 110	1399	1258	86	71
efficiency	17.8%	0.3%	0.1%	0.0%

2nd KK mode

280 < N mass < 320	2209	13177	0	150
efficiency	28.1%	4.0%	0.0%	0.0%

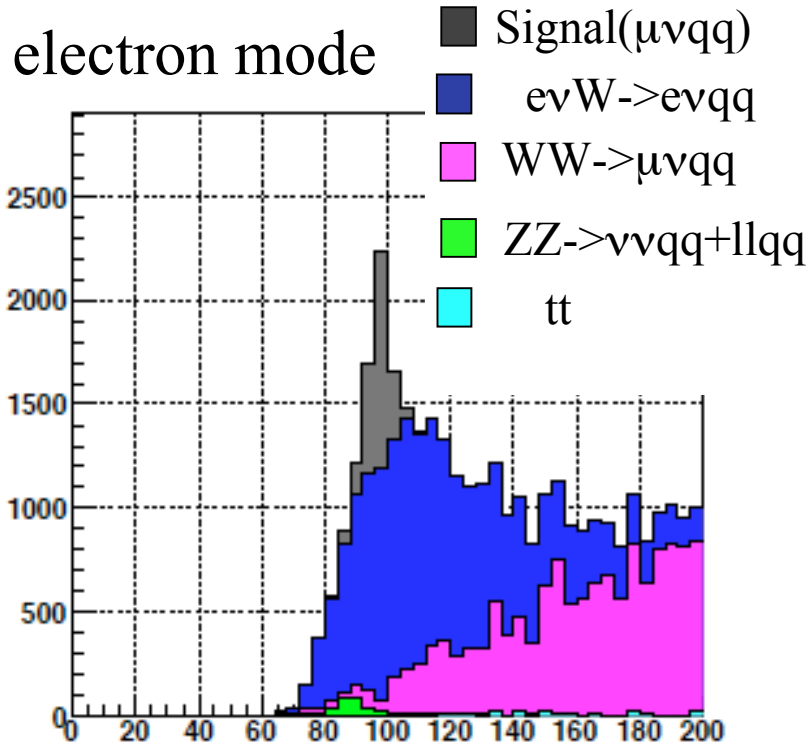


tt event is rejected completely

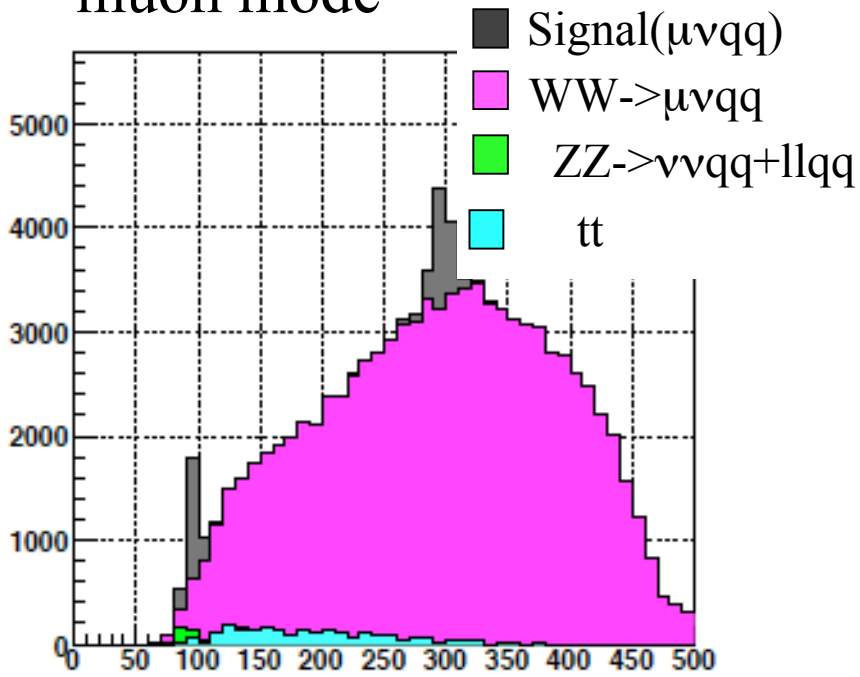
Right-handed neutrino mass

Right-handed neutrino mass is investigated included tt background

electron mode



muon mode



tt background is no problem

Summary

We investigated the influence of the tt background on signal sensitivity

- The tt event dose not influence on the signal sensitivity

Next plan

☞ Analysis of 2nd KK mode on e-mode @500 GeV
☞ Analysis of 3rd and 4th KKmode of N @1TeV

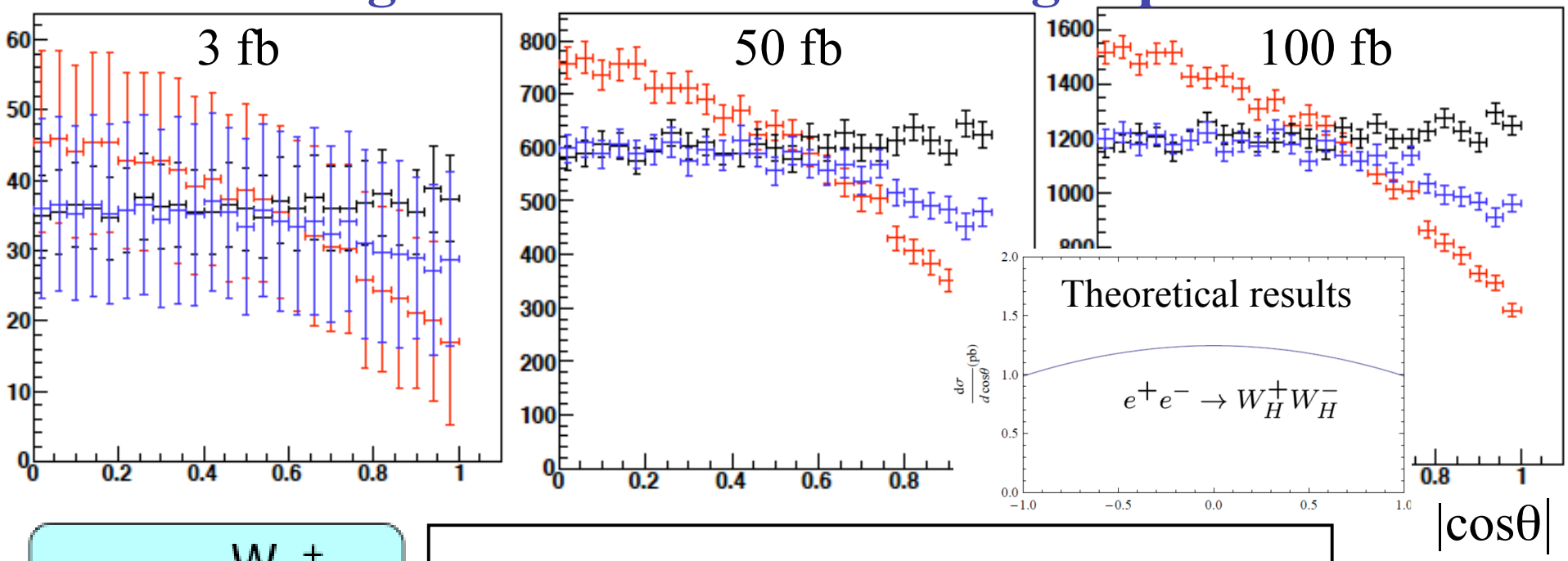
Model Identification @1TeV

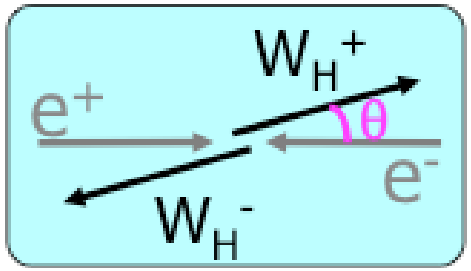
- The angular distribution of the charged particle at LHT was mismatch the result of the theoretical calculation
  ⇒ We found my mistake and the result was improved

Angular distribution of charged particle

We investigated the angular distribution of charged particle at σ= 3, 50, 100 fb.

Angular distribution of charged particle



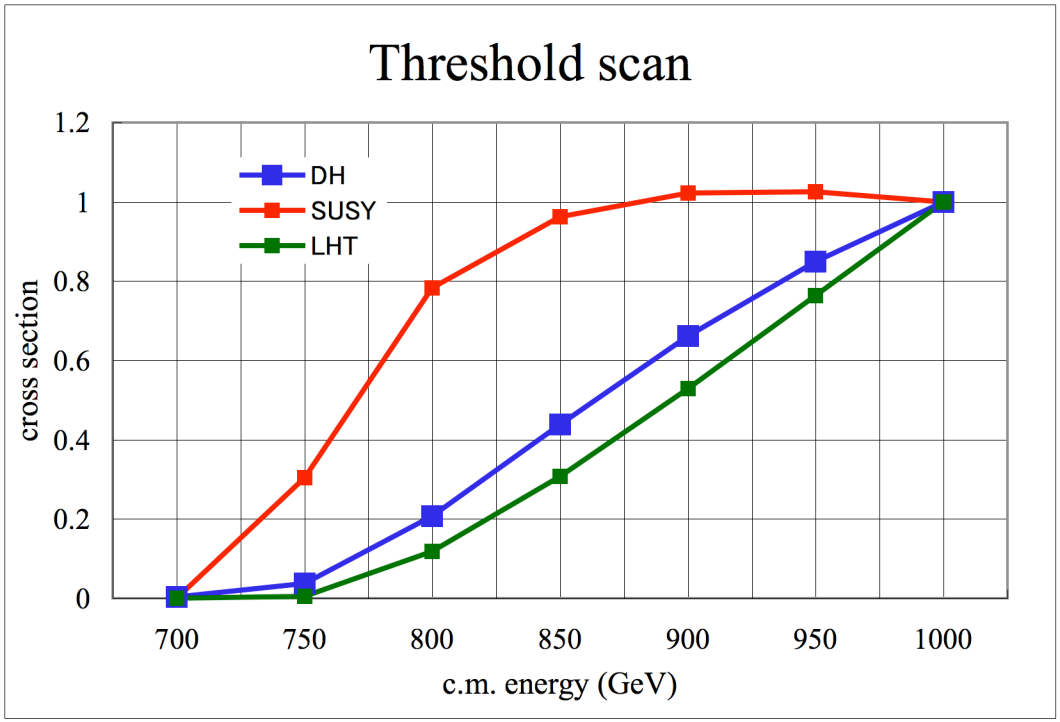


DH SUSY LHT

DH is distinguished clearly

Angular distribution of charged particle

The result of the threshold scan is also improved



SUSY is distinguished clearly

Summary

The angular distribution of the charged particle was improved

- Our result reached agreement on the theoretical calculation

Next plan

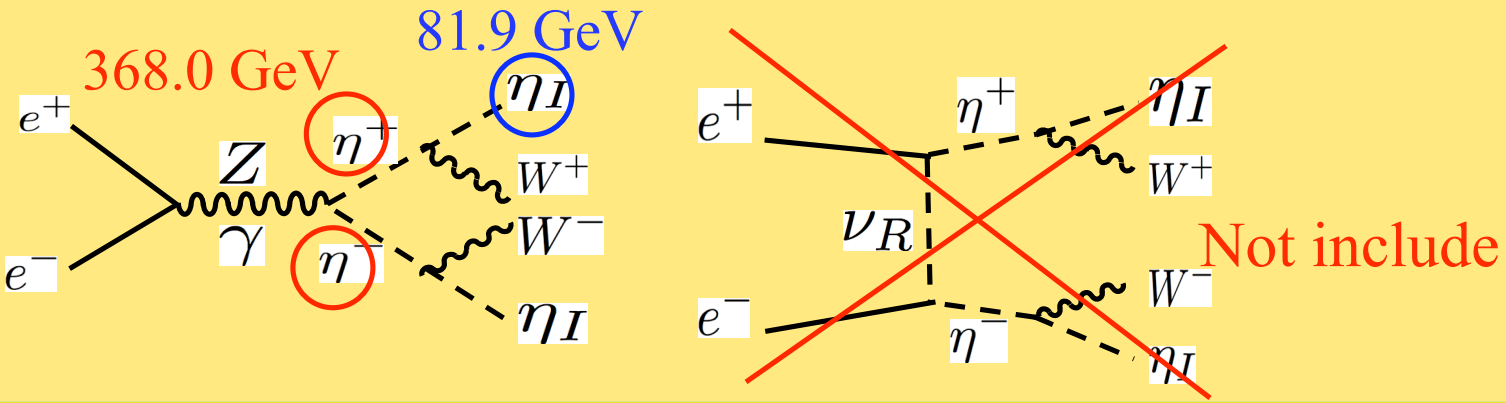
☞ The sensitivity of the identification is estimated

Back up

Analysis mode

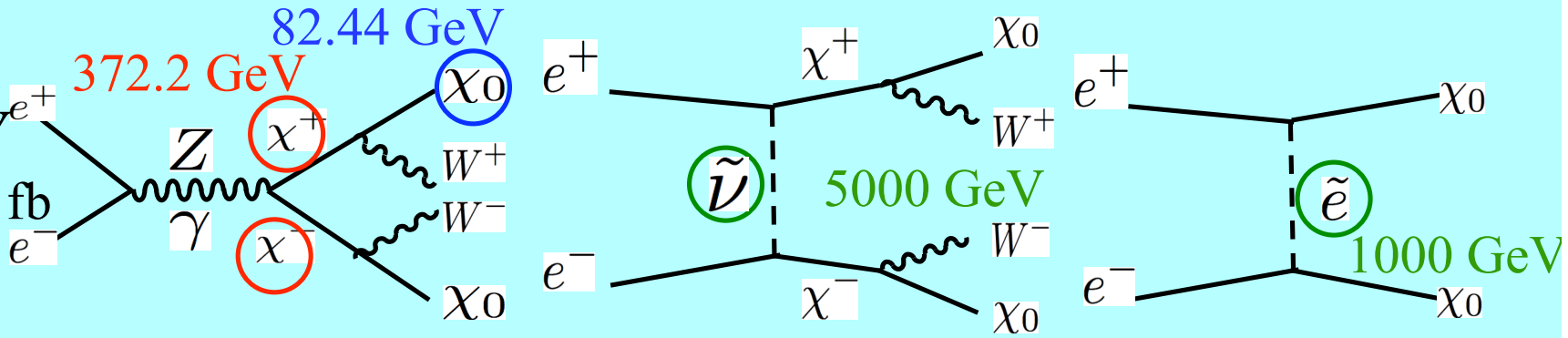
DH

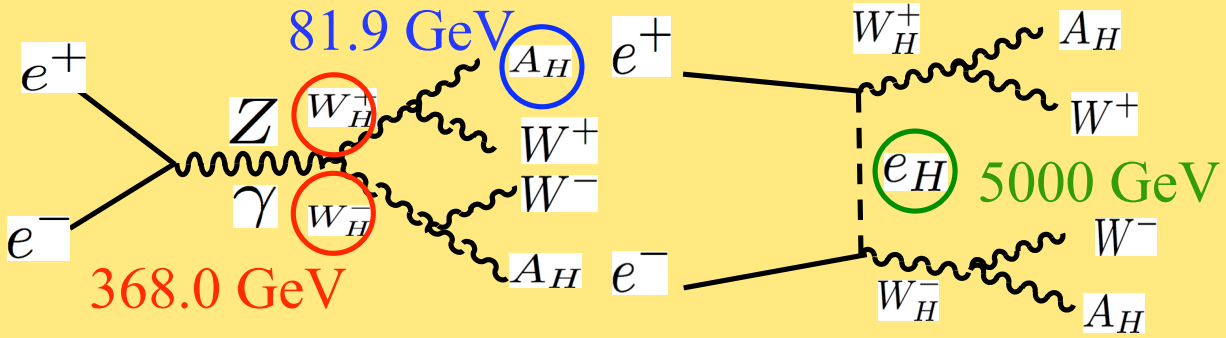
σ=3.2 fb



SUSY

σ=36.8 fb



LHT

σ=106.5 fb