a first look to the off-shell Higgs decay in ZH—>llWW

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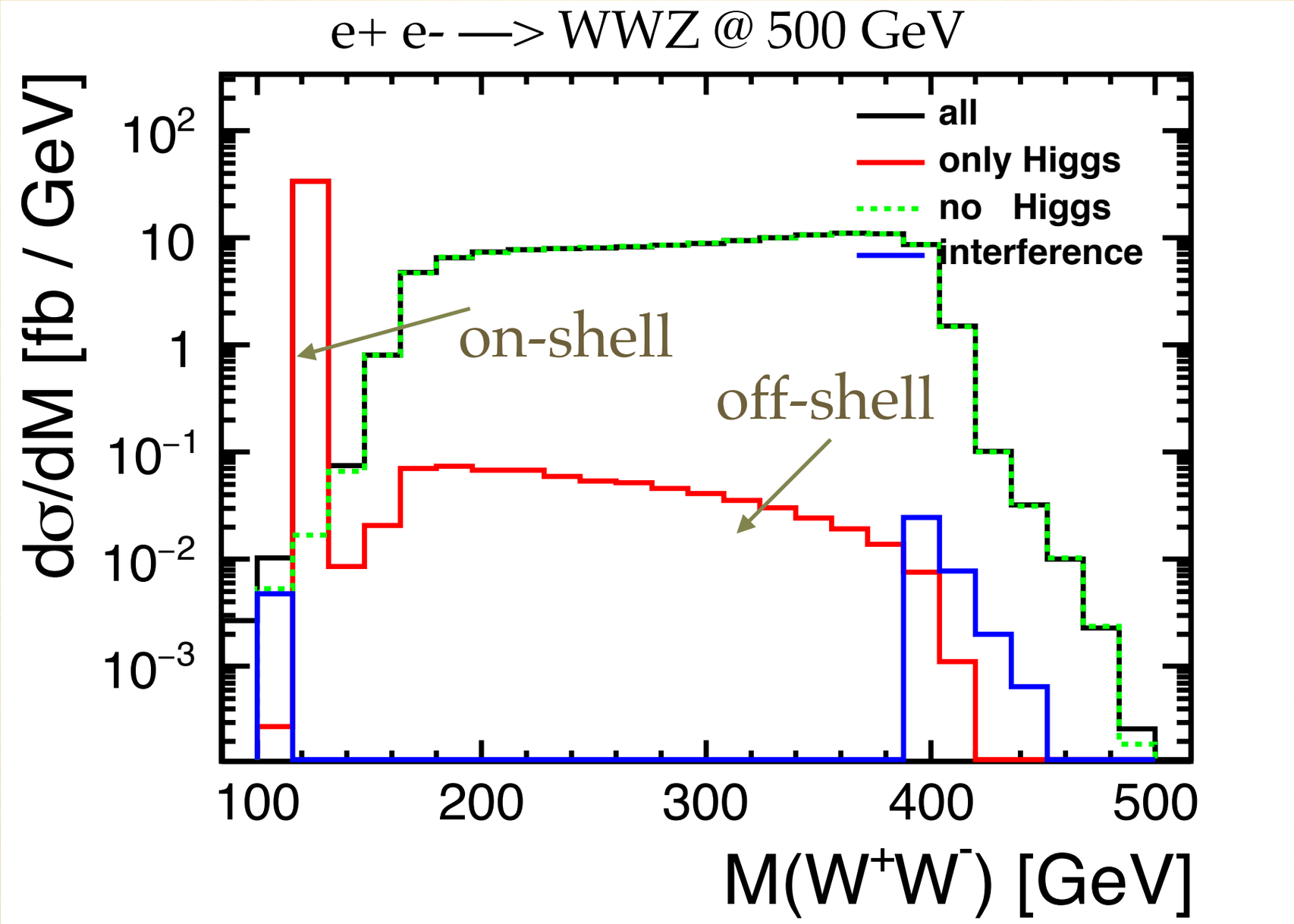
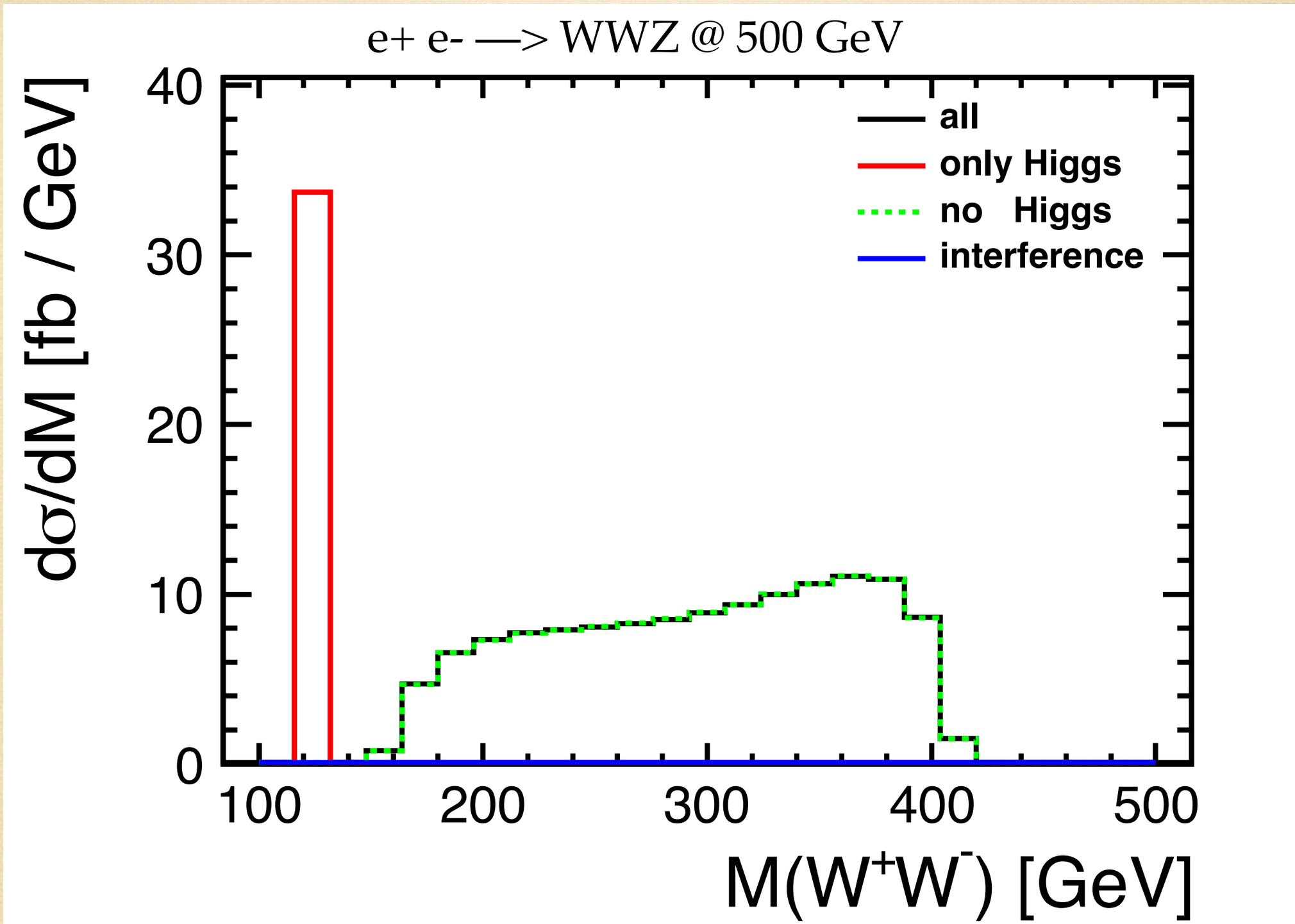
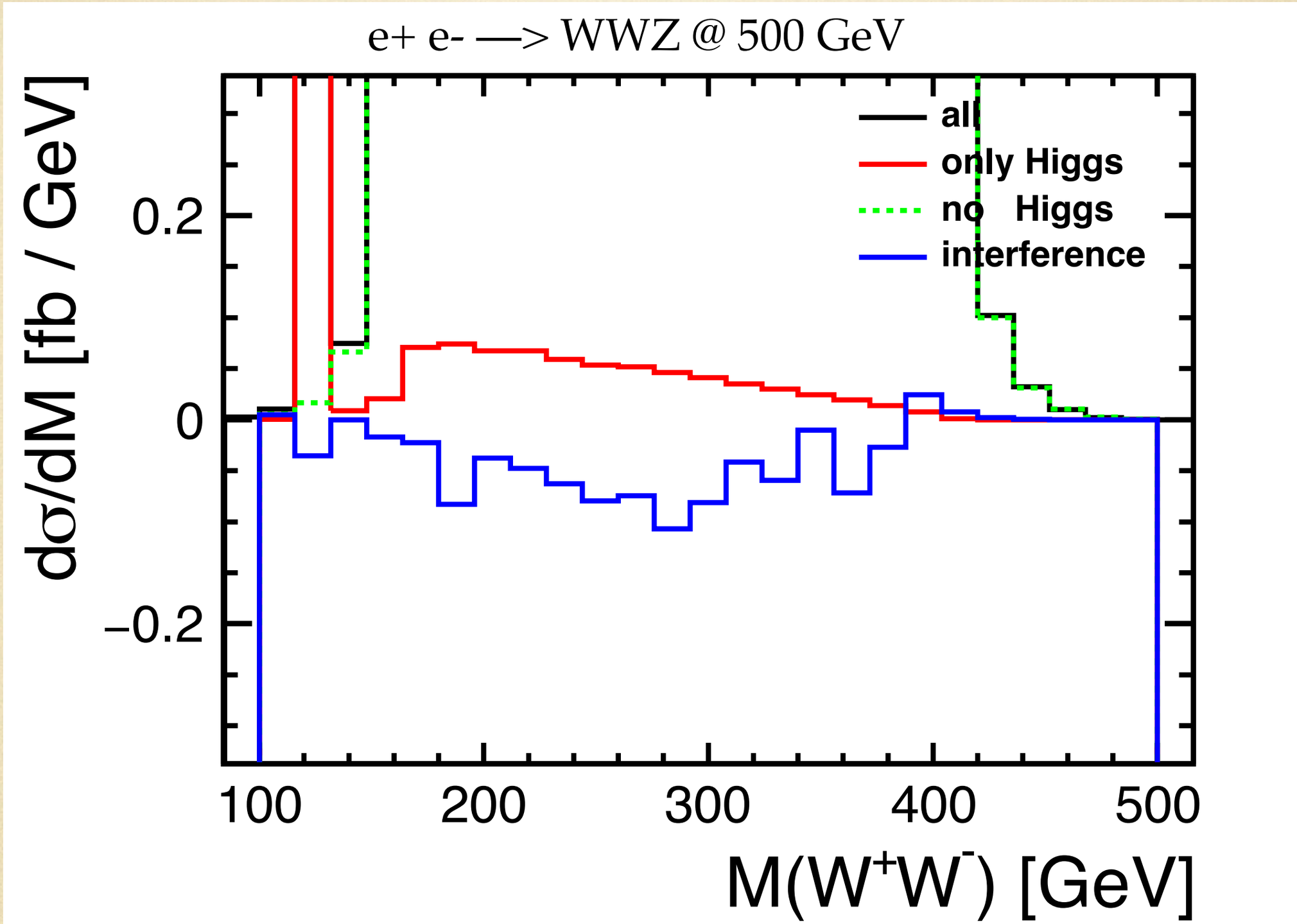
investigate the inference between Higgs diagram and SM background diagram in off-shell region

generator by physsim (thanks to Fujii-san for solving some potential bugs)



off-shell contribution ~ 3%

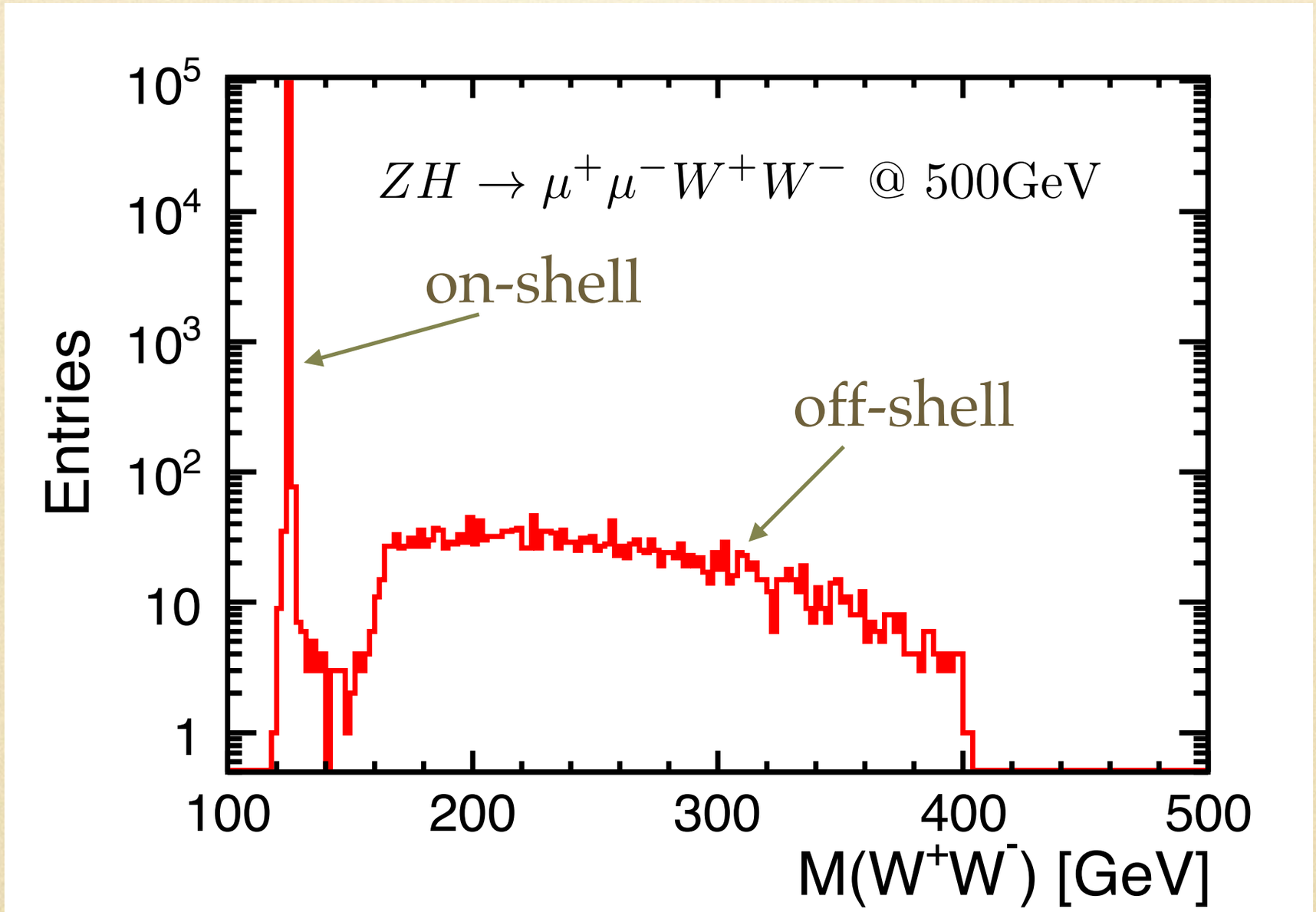

e+ e- —> WWZ @ 500 GeV
all
only Higgs
no Higgs
interference
dσ/dM [fb / GeV]
40
30
20
10
0
100
200
300
400
500
M(W+W-) [GeV]


e+ e- —> WWZ @ 500 GeV
dσ/dM [fb / GeV]
0.2
0
−0.2
all
only Higgs
no Higgs
interference
100
200
300
400
500
M(W+W-) [GeV]

backup

how off-shell H*—>WW contributes to recoil mass?

generator by whizard: e2e2f1f2f3f4;
r: f1+f2~W+ && f3+f4~W- && f1+f2+f3+f4~H



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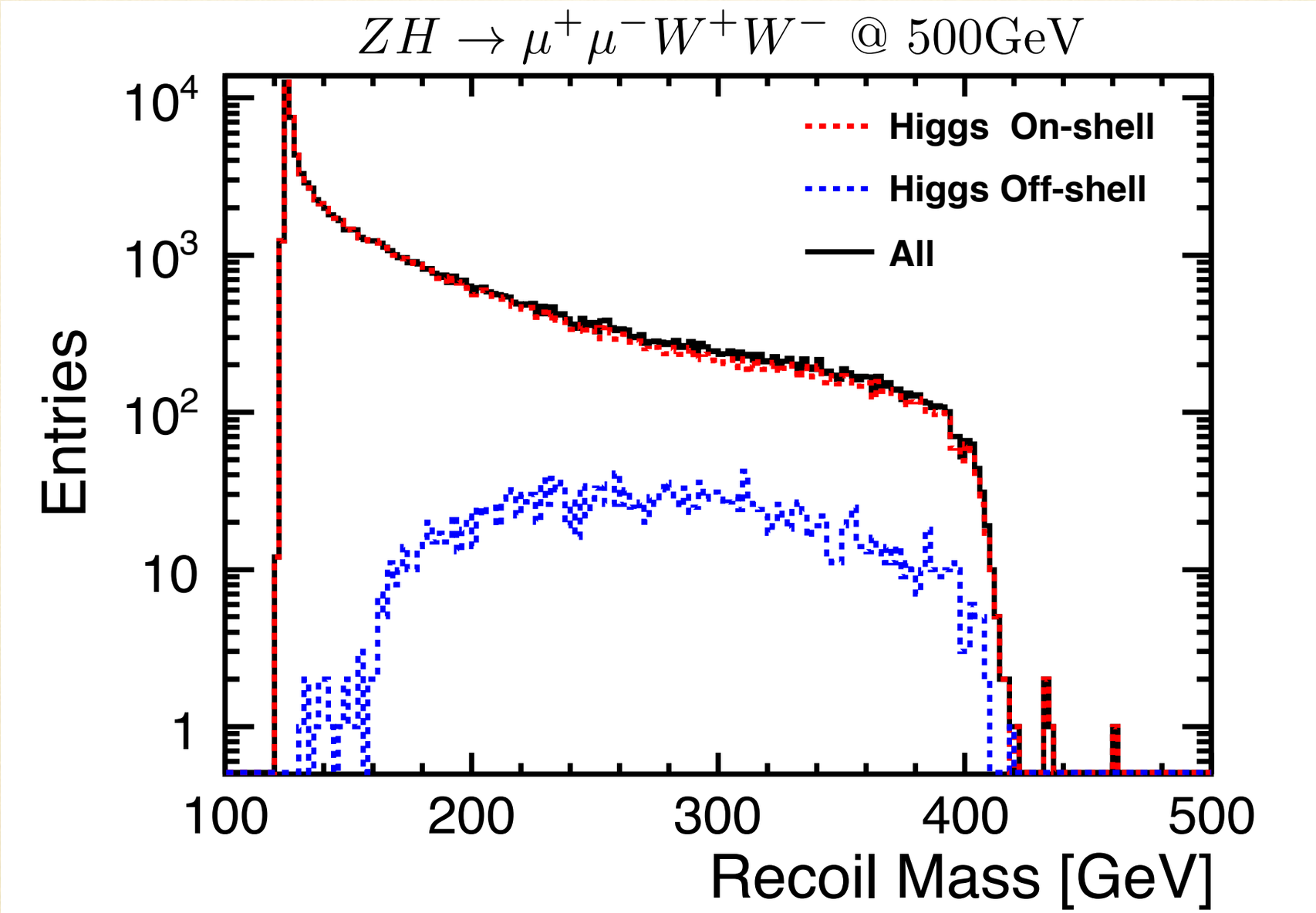
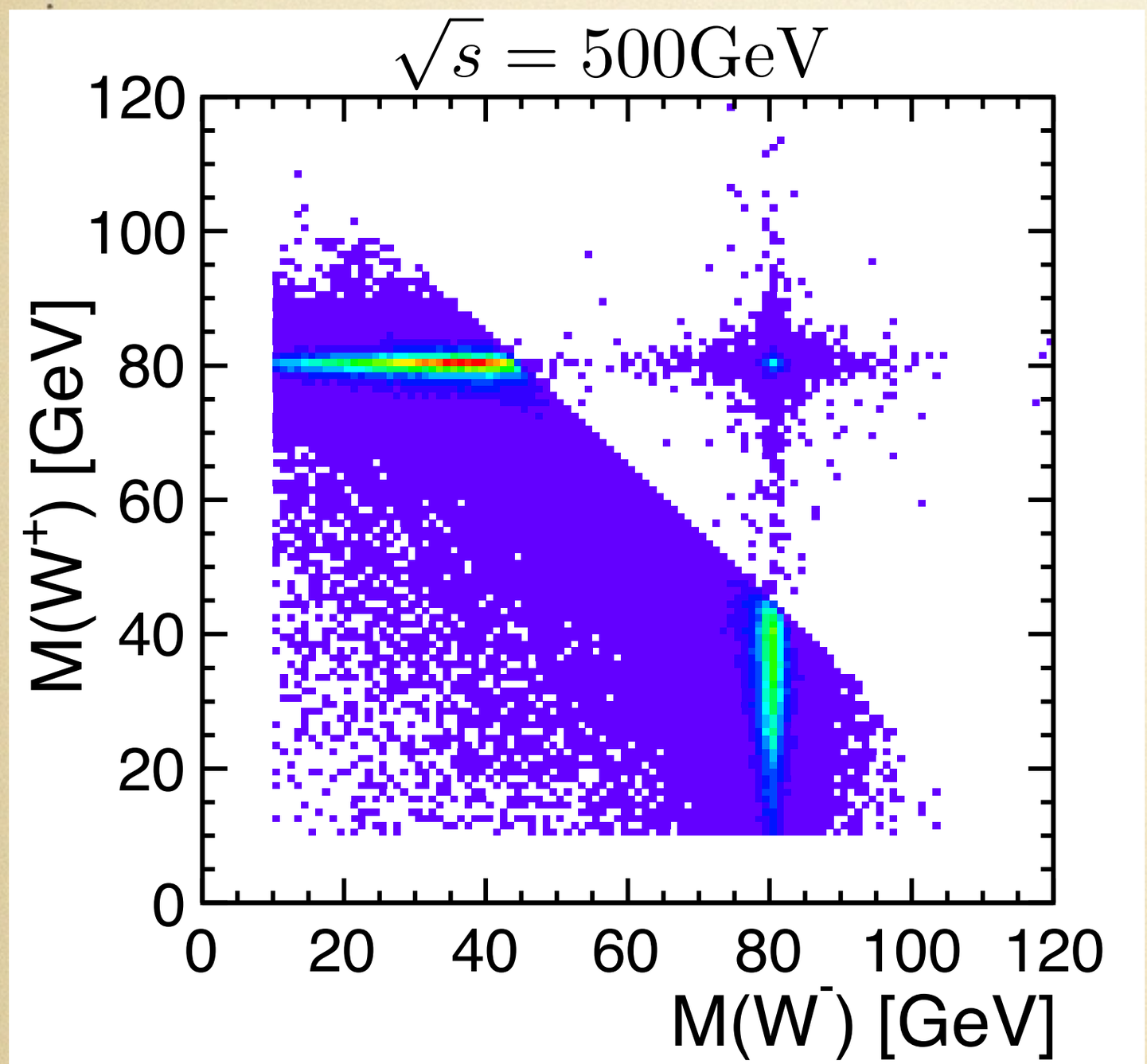
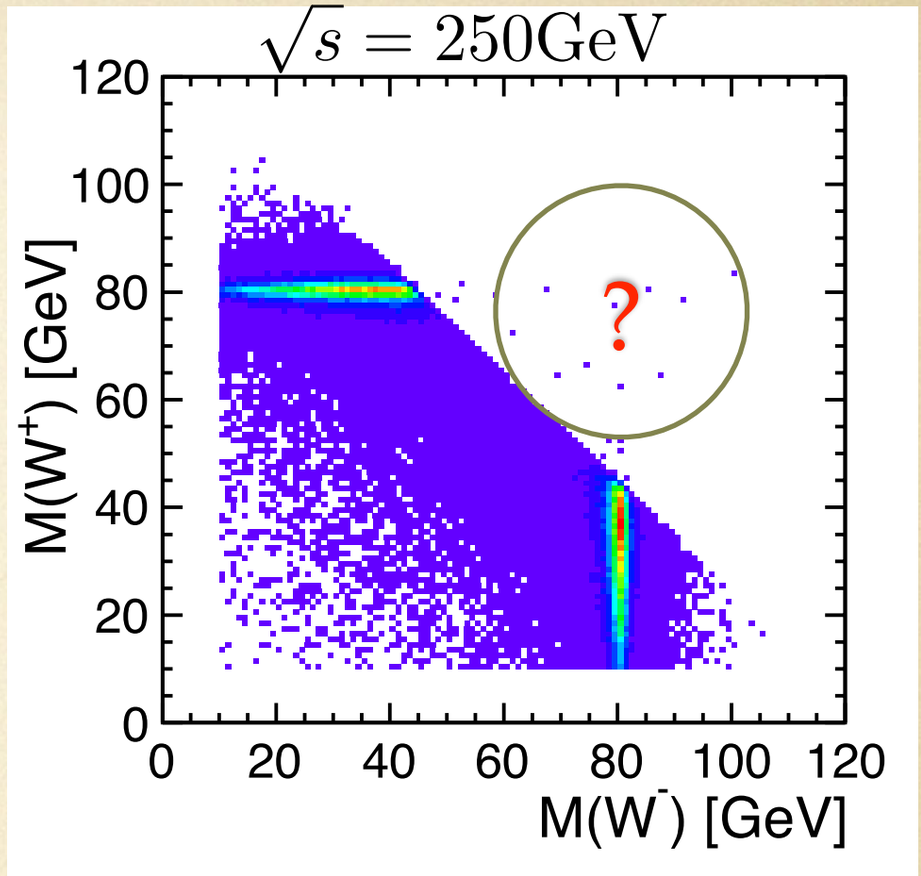
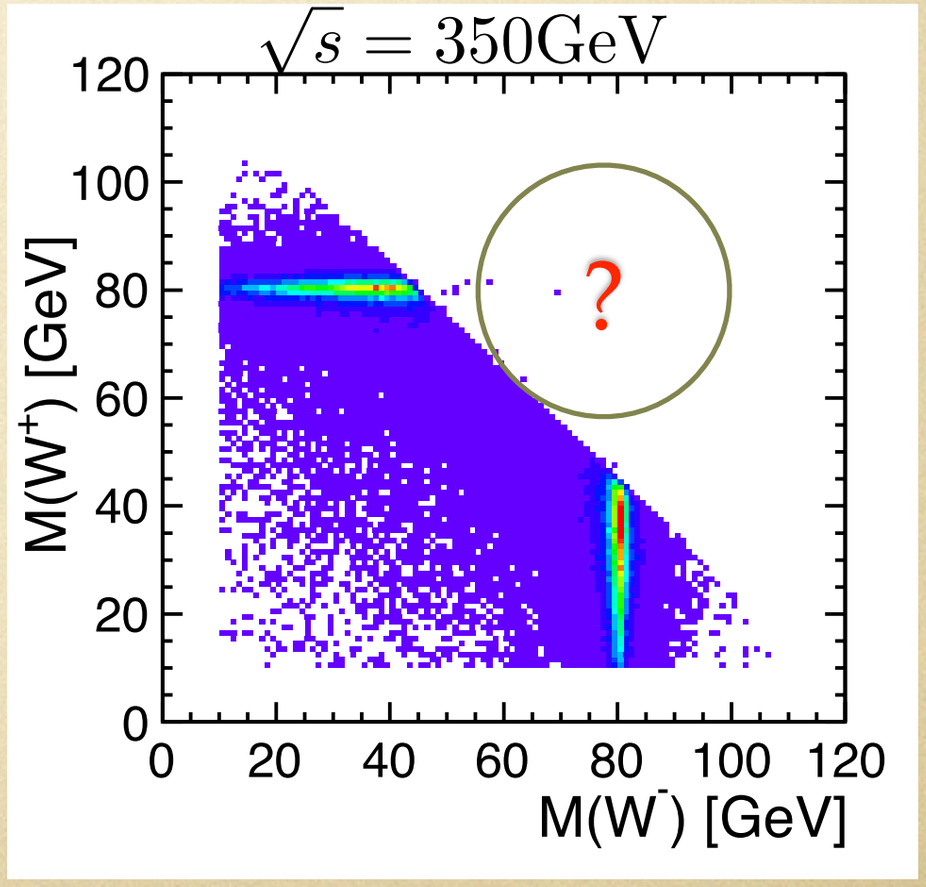


in recoil mass, off-shell contribution is completely buried by the tail from beam-strahlung and ISR.

at different ecm







it seems whizard failed to find the peak with on-shell W pair at 250 and 350 GeV —> going to investigate why and how to resolve?