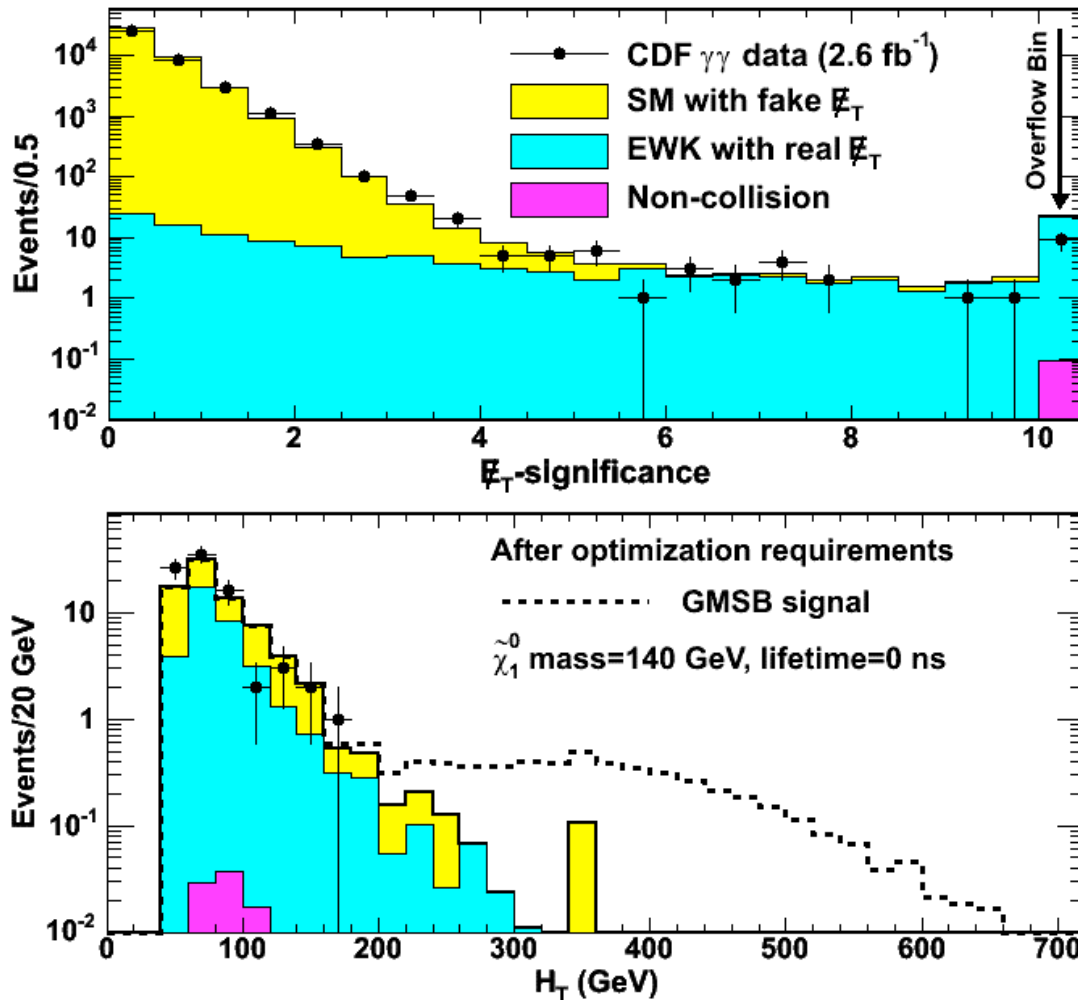# *Changes in PRL draft since v1.0*

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for Authors

Bottom Plot of Figure 1

Question from SPRG:

"The number of background events of 1.4, quoted in the text, is inconsistent with what this plot shows(bottom part), where above 200 GeV of H_T one can only account for at most 0.7 events"

Quick Answer

✦ The Analysis uses global EWK Scale Factor (SF)

$$SF = data(e\gamma)/MC(e\gamma)$$

where we integrate all events above HT cut since there are small statistics around the cut region

✦ This is why there is a large error on the SF (1.41 ±0.47)

✦ Using single SF is fine for overall analysis, but is not fine for the plot since the SF can vary significantly

Quick Answer-cont.

✦ A better estimate apply the bin-by-bin ratio, data($e\gamma$)/MC($e\gamma$), for EWK background to the plot

✦ In old plot the SF for all events was 0.7. This is much smaller than the SF=1.4 for H_T>200 GeV cut, but is the same within errors

✦ This makes the estimate above 200 GeV appear smaller than it should have

✦ So using the bin-by-bin SF makes the analysis be more consistently displayed

Why the SF is a function of H_T
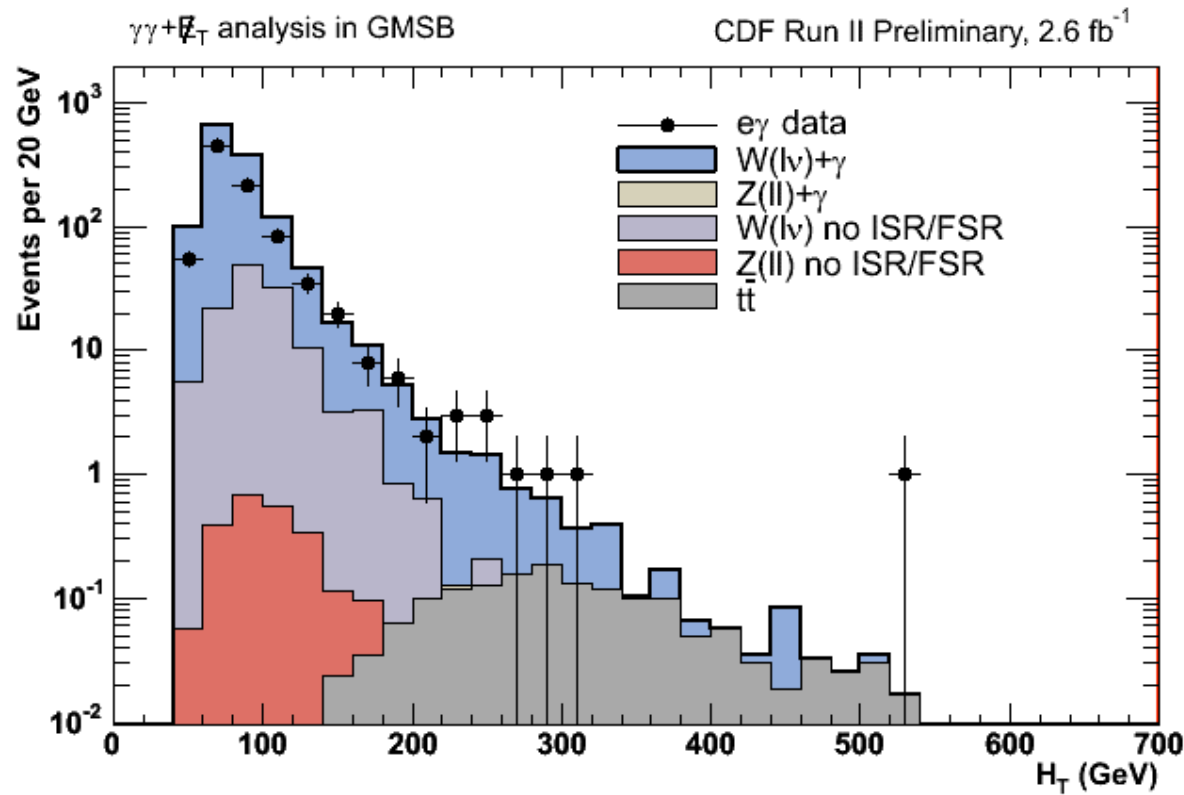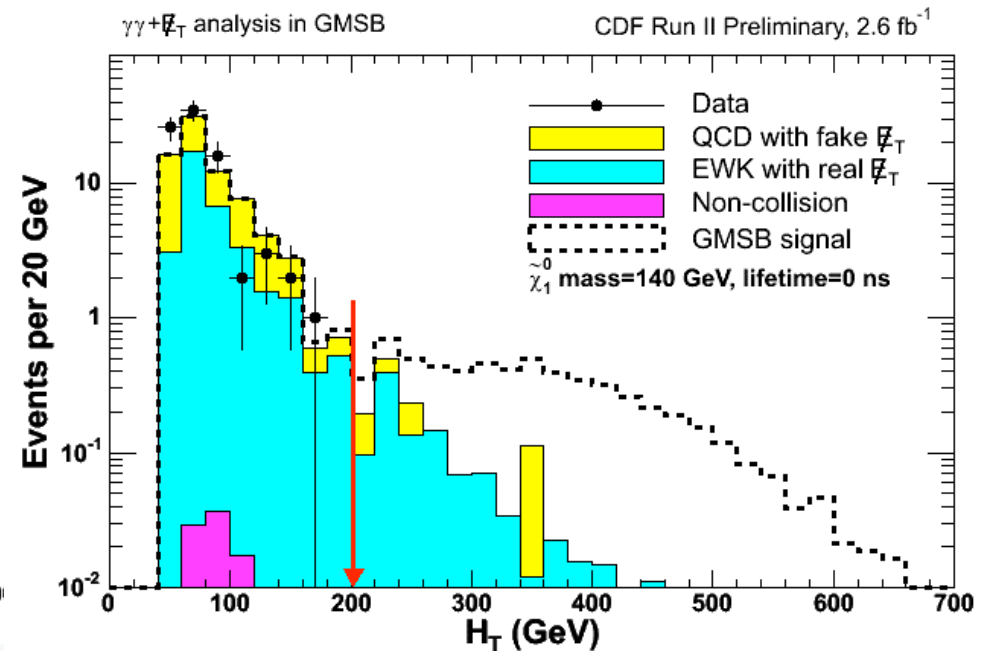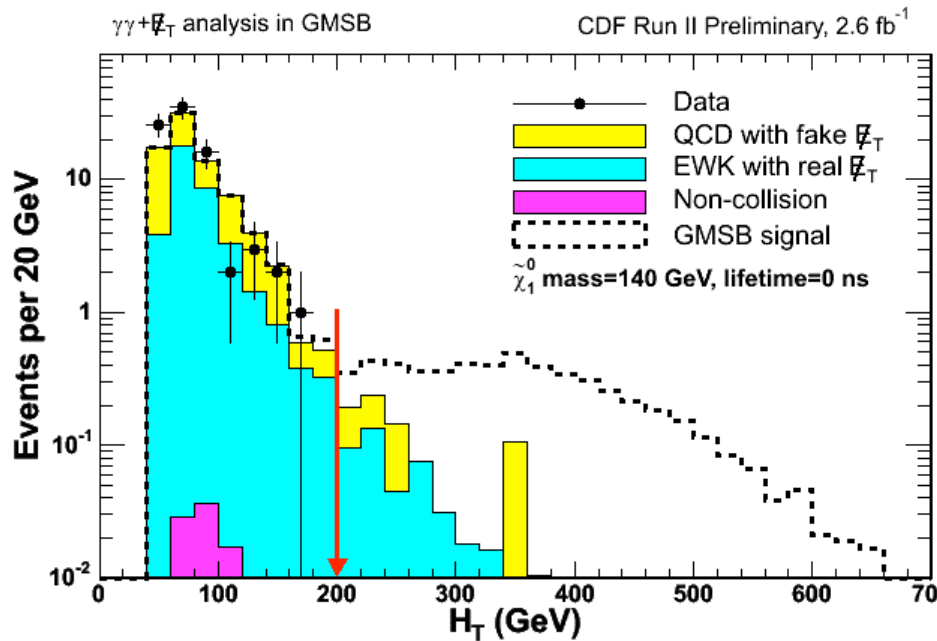

eγ data and MC comparison

Bin-by-bin Ratio vs. SF (the ratio of the integrated number of events above H_T cut
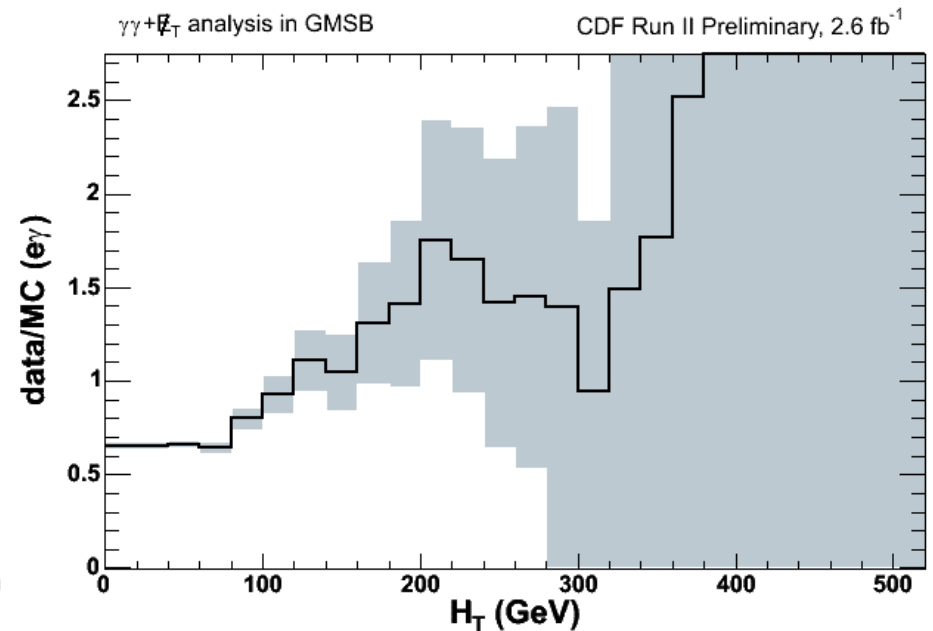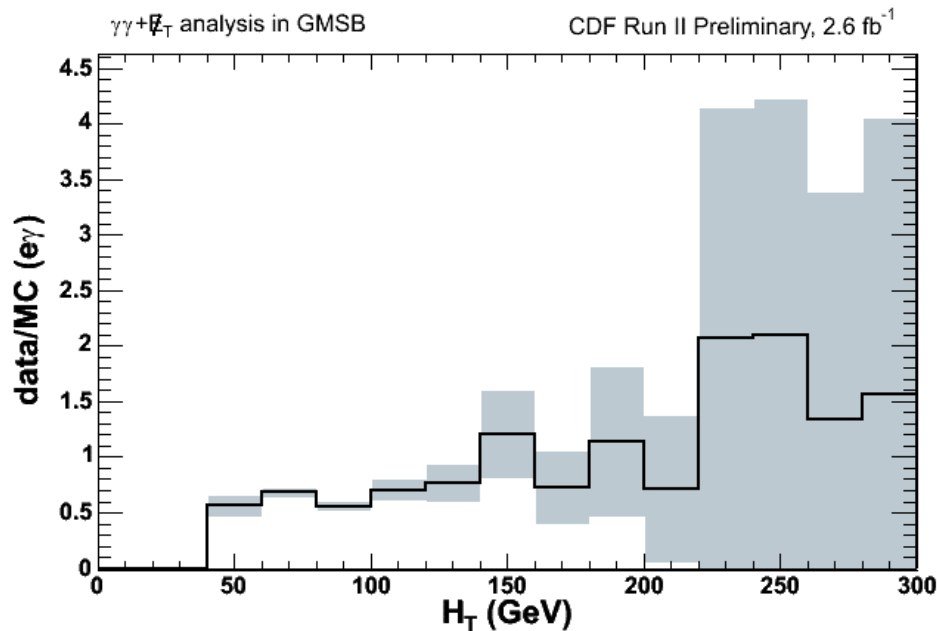
Bin-by-bin Ratio

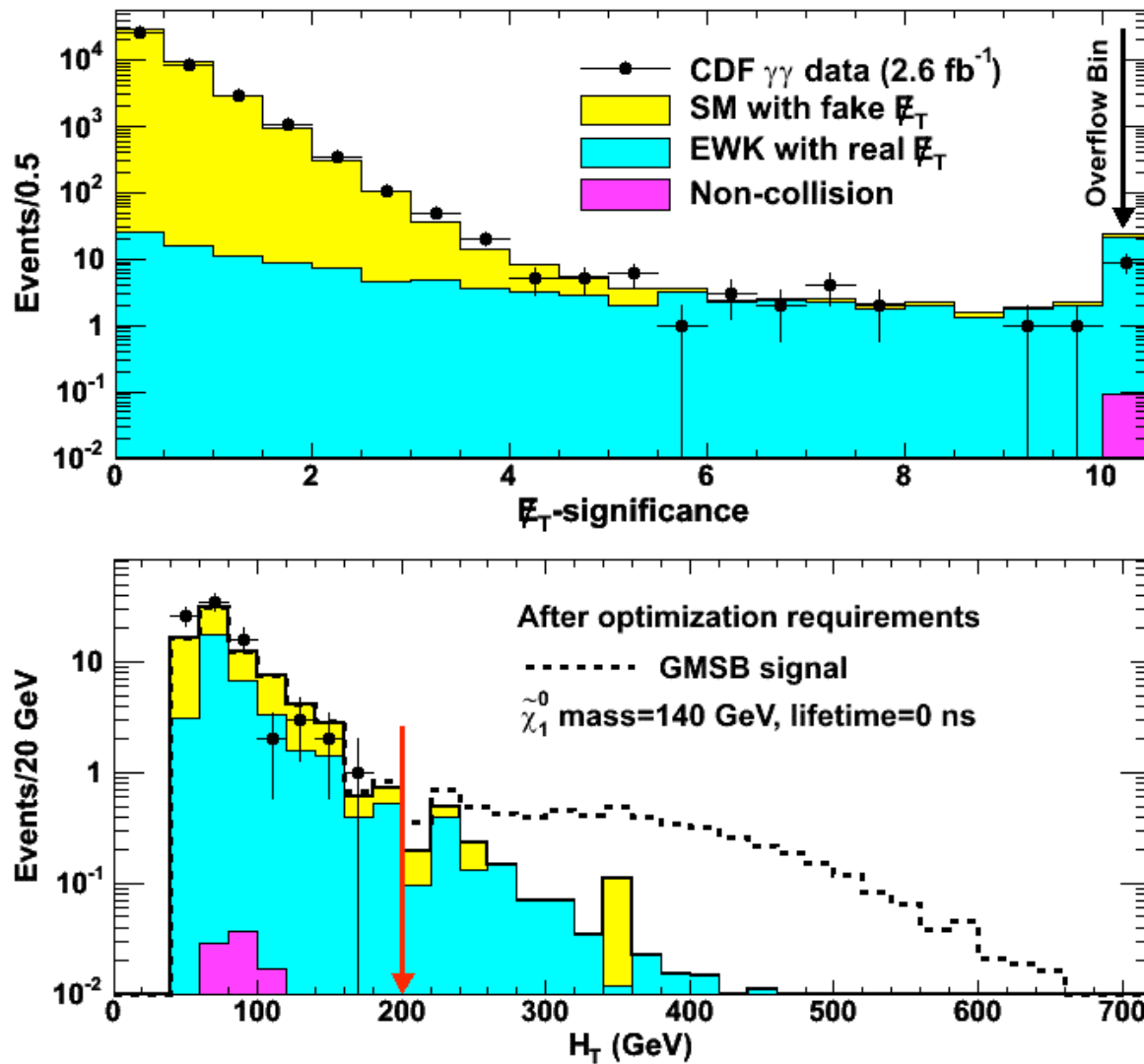Ratio of integrated number of events above H_T cut (constant SF)

H_T N-1 Plot comparison

Old with constant SF=0.7
$\Rightarrow$ EWK rate appears as 0.46
(should be 0.92)

Bin-by-bin correction
$\Rightarrow$ EWK rate appears as 0.91
(consistent)

New Figure 1

- **Now the bottom plot with bin-by-bin correction is displayed consistently !**

Other Minor Changes

✦ Added that the BR of $\tilde{\chi}_1^0 \rightarrow \gamma + \tilde{G}$ is greater than 96%

✦ Fixed some typos in the references

✦ Added two additional references (Eunsin's thesis and GMSB simulation with full SUSY channels)

✦ Rephrased a number of sentences to make them more explicit and better grammatically