Weekly report

Yu Zhang

IHEP

May 22, 2017

Eq. 2: Please specify over what the second product is running.

l403: n_b should be n_Cont

Figs. 20-24: what are $c1$ and $c2$? Please specify this in the text/caption.

- Those are constraint terms for constrained nuisance parameters.
- $c1$ and $c2$ is the parameter of background shape. The pull of these two parameters does not make sense.

Figs. 30-34: Please also add plots where you only show a reduced correlation matrix, i.e., show only parameters where at an NP is correlated with any other NP by at last —20%—. That way, we would be actually able to see something for the ones that exhibit a correlation.

You are missing the NP ranking plots. I would like to see how the impact of each NP is on the measurement.

How do the NP pulls, NP rankings, and correlations look if you actually inject a signal? Here, the signal component should be roughly normalized to the previous upper limit.

- @Qi reproduce the correlation plot for those largely correlated.
- NP ranking
- What if inject signa.

You state in line 426 that you use the asymptotic approximation. Since we have very low event counts here, is the asymptotic approximation still valid? Did you try toys?

I cannot find fits of the double-sides CB to BSM signals or SM single-Higgs-boson production. Please add them, including the result for each determined parameter, including uncertainties.

- I think the toys should be the finial result
- @Qi should add it

I am missing the information which of all the fit parameters you fix and which ones you let float freely, especially for the signal PDF. Also, do you plan to vary the fixed parameters by their uncertainties in order to get an additinal systematic uncertainty?

Table 27: Why are the expected limits now for 260 and 300 GeV worse that the 8 TeV 20 fb-1 results? Are the Run 1 results and the Run 2 13 fb-1 results the observed or expected limits? You should add both in this table. A comparision only makes sense with the expected limits, of course.

- signal PDF is fixed and photon energy scale and photon energy resolution is considered. we don't plan to vary the fixed parameters.
- Weiming also asks to compare Run1 result.