Weekly Meeting

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Monday, April 25, 2016

The yields for SM Higgs processes

- The VBF, ggH, WH, ZH are ok, the ttH is much larger than before.
  - ttH = 0.38 (0.039)
  - WH = 0.12 (0.098)
  - ZH = 0.029 (0.028)
- The HGamAnalysisframework (h011 samples) has few issues on b-tagging. And the cut-flow has implied the same issue while running the samples; the b-veto doesn't work.

$\epsilon^{B}_{\gamma\gamma}(e^{ax}) = 0.1364$
$\epsilon^{B}_{\gamma\gamma}(lvjj\gamma\gamma) = 0.1366$
$\epsilon^{B}_{\gamma\gamma}(\gamma\gamma jj) = 0.1363$
$\epsilon^{B}_{\gamma\gamma}(e^{ax+bx^2}) = 0.1374$
$\epsilon^{B}_{\gamma\gamma}(120 - 130) = 0.1362$
$\epsilon^{B}_{\gamma\gamma}(117.5 - 132.5) = 0.1370$

Systematic

- All sys for SM Higgs processes are stored in /workfs/atlas/liqi/WWyy_Analysis/Sys/ttH_sys.txt, WH_sys.txt, ZH_sys.txt (absolute value, not percentage)
- So far, the sys for signal have not been complete
- The uncertainty on Luminosity is +- 5%
- The uncertainties on $\epsilon^{B}_{m_{\gamma\gamma}}$,
  - 0.22%, the sideband without any lepton
  - 0.73%, fitting model
  - 0.59%, sideband definition
  - 45%, Statistics uncertainty (5 events counted in sideband)

Sys/ttH	Up	Down
PRW_DATASF	0.0437286	0.0668393
JET_EffectiveNP_1	0.0555963	0.0555963
JET_EffectiveNP_2	0.0555963	0.0555963
JET_EffectiveNP_3	0.0555963	0.0555963
JET_EffectiveNP_4	0.0555963	0.0555963
JET_EffectiveNP_5	0.0555963	0.0555963
JET_EffectiveNP_6restTerm	0.0555963	0.0555963
JET_Flavor_Response	0.0555963	0.0555963
JET_Flavor_Composition	0.0555963	0.0555963

Next to do

- Update the sys
- Check the bkg yield using the h010 samples