

Seminar Report

ZhangKaili

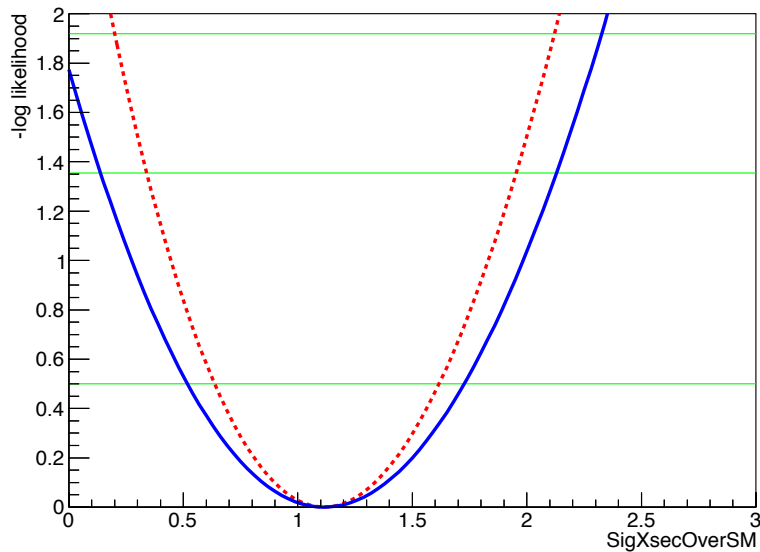
2016-03-14

What I have done since Jan.....

- Reviewed the former ATLAS paper
 - Higgs boson pair production in the $hh \rightarrow b\bar{b}\tau\tau, \gamma\gamma WW^*, \gamma\gamma b\bar{b}, b\bar{b}b\bar{b}$ channels
 - ATL-COM-PHYS-2014-025 Note of gamma channel
 - Physics Analysis Workbook: Release 20
 -
 - Big Picture for our current study
- Validation of WWWW bkg.
 - By Maosen: No sample news since Jan
 - generate samples by Madgraph5
 - After 200 hours and finally broke down, just give up;
- Help Xiaohu VBF Combination
 - HistFactory
 - manually test many parameters in tutorial
 - By C/python, statuncer global/single channel, stat Constraint type.....

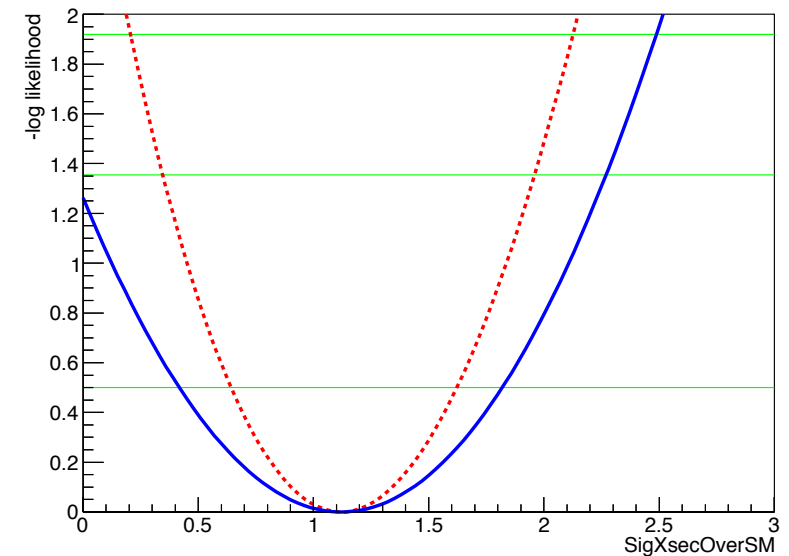
Marcos in HistFactory Tutorial

Default likelihood ratio curve



Red line: Signal data-driven likelihood
Blue: Combined
Stat Constraint type: Poisson,
Stat Uncertainty: 5%

Stat Uncertainty->10%

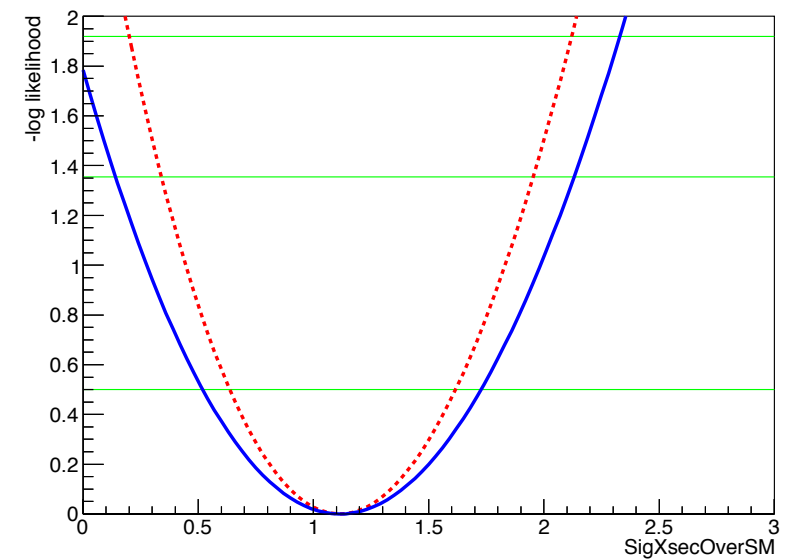
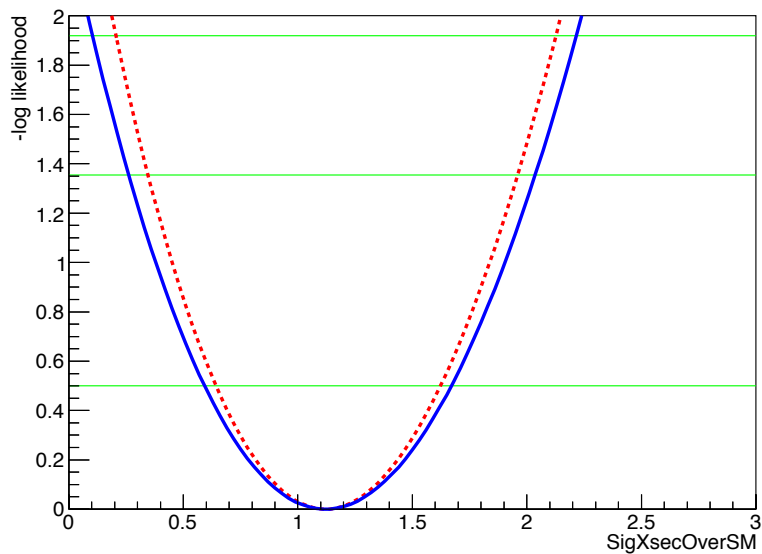


other nuisance parameters
(like $\alpha_{\text{syst}2,3}$)
are not listed.

Marcos in HistFactory Tutorial

Bkg Channel1,2 statuncer->0

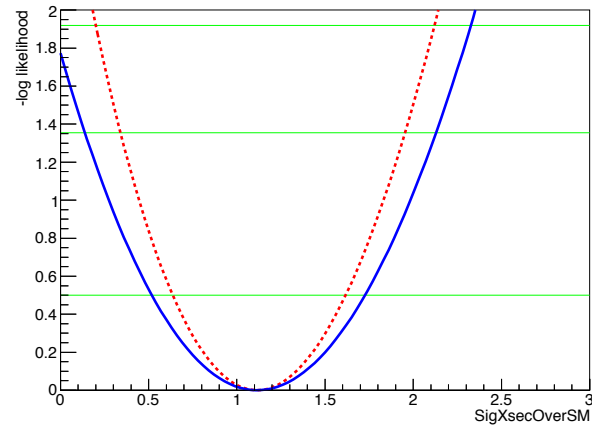
Stat Constraint type->Gaussian



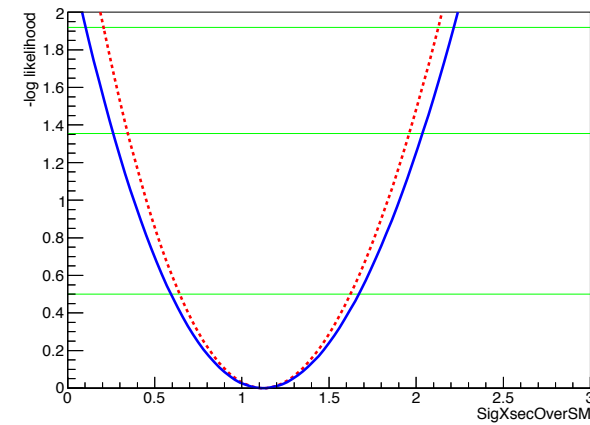
No observable difference;

Marcos in HistFactory Tutorial

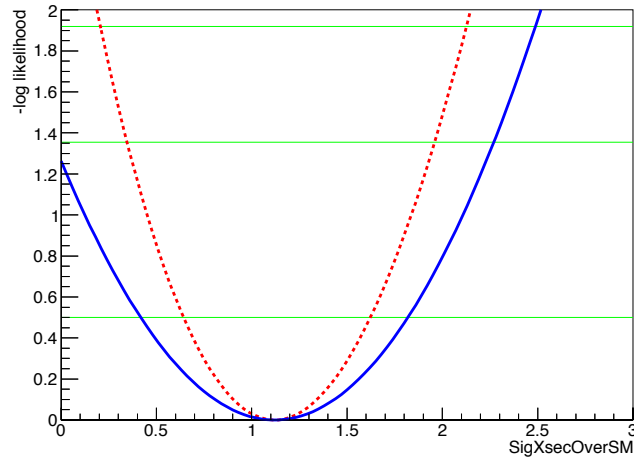
Default likelihood ratio curve



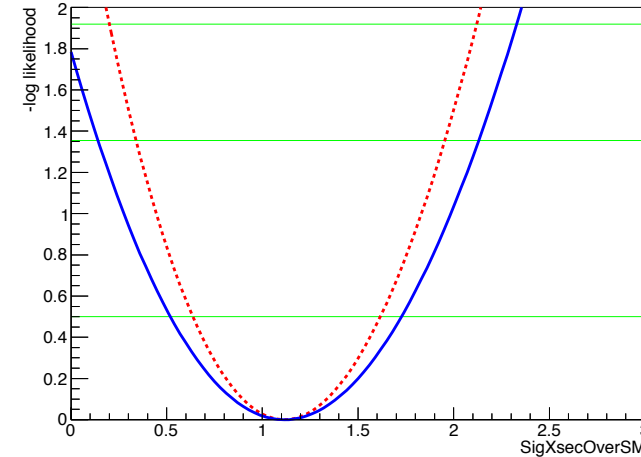
Bkg Channel1,2 stat uncer->0



Stat Uncertainty->10%

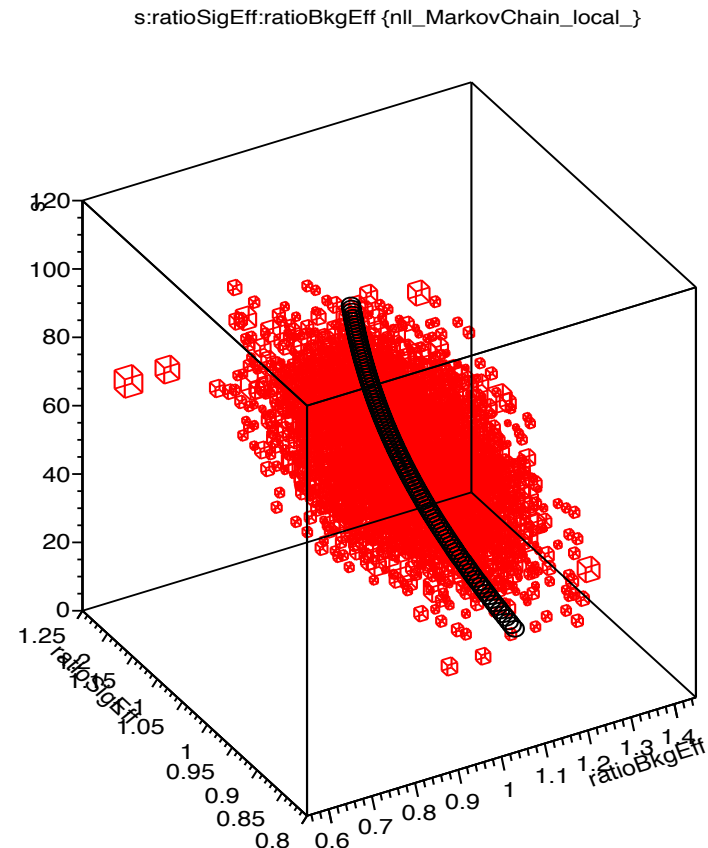
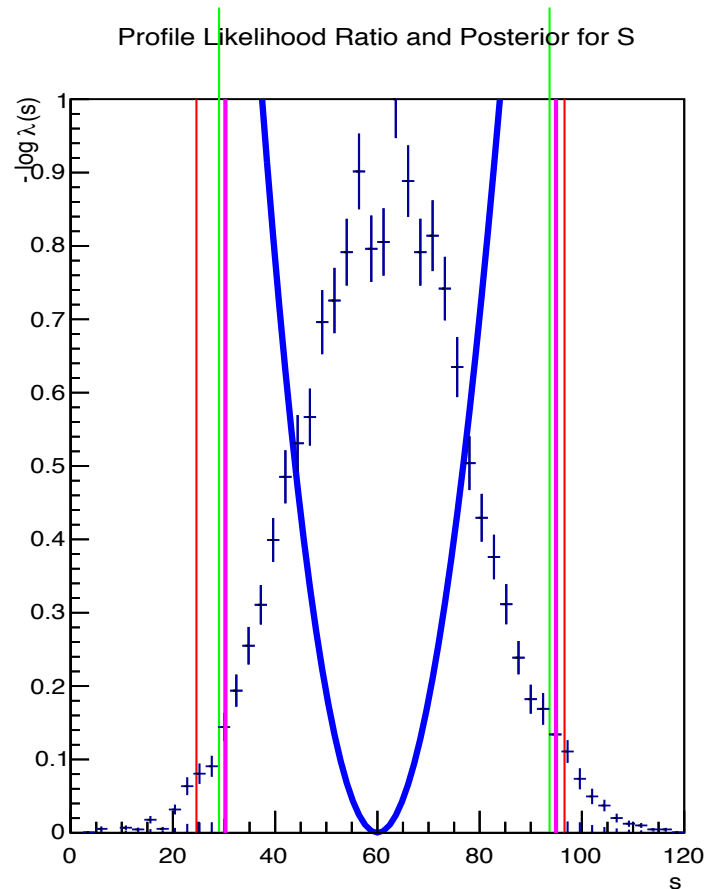


Stat Constraint type->Gaussian



Marco:rs101

Confidence Interval Calculator to set a limit.



May not understand totally, but can edit the scripts to use.

Other Undergoing:

- Wangjing' Analysis Package, code reviewing
 - Task: $h \rightarrow b\bar{b}/c\bar{c}$ channel distinguished ratio.
- hh4W Cut optimization in HhhUFO2_300~700
 - Code Reviewed;
- Diphoton 750GeV
 - Reviewing ATL-COM-PHYS-2015-1246
 - Plan to repeat the fit