

中国科学院高能物理研究所
Institute of High Energy Physics
Chinese Academy of Sciences

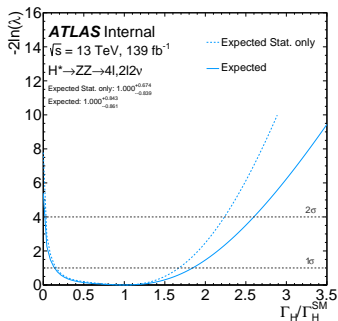
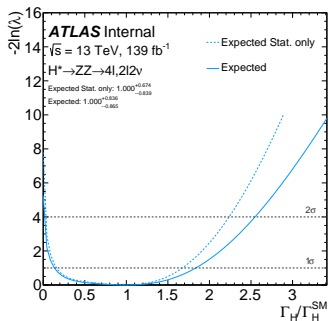


Weekly update

Abdualazem Fadol

September 19, 2022

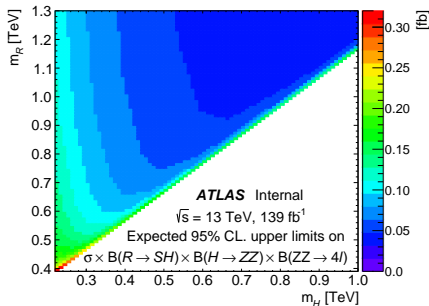
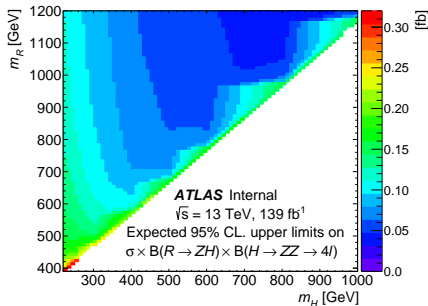
- Most of the current discussion revolve around the $2\ell 2\nu$ and checks for the 4ℓ channels:
 - Adding missing systematic like FT, theory systematic
 - New mini-trees with 21.2.189 instead 21.2.139 ($2\ell 2\nu$)
 - A large difference on $ggZZ_QSF_norm$ uncertainties in 4ℓ and combination
 - In general, harmonisation between the two channels



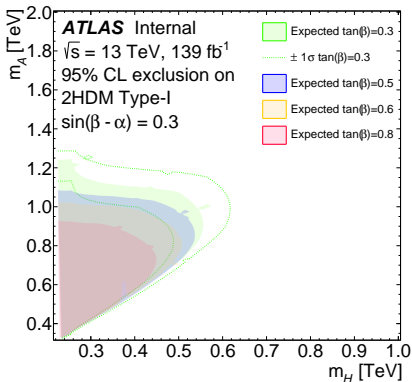
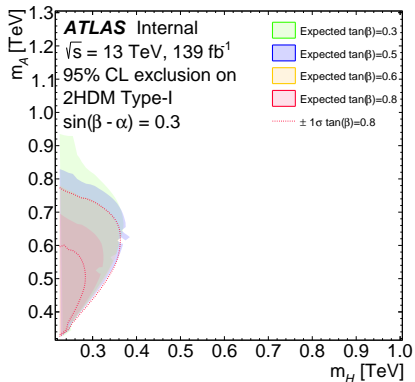
- **Summary:** the EB will be looking at the note this week with final results.

$4\ell + E_T^{\text{miss}}$ analysis

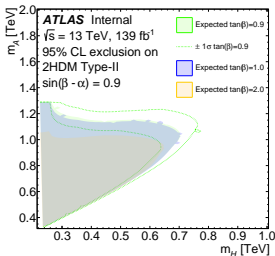
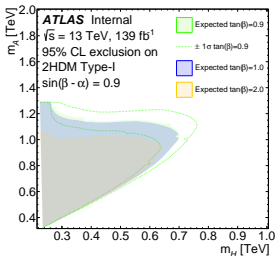
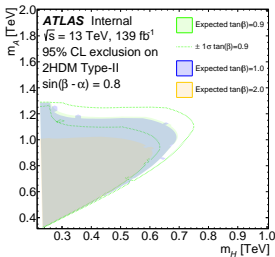
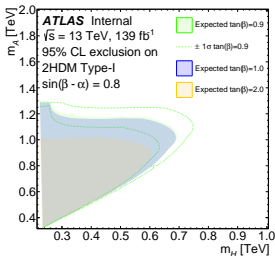
Upper limit on (m_R, m_H) plane for the $R \rightarrow SH \rightarrow 4\ell + E_T^{\text{miss}}$ model



- Upper limits at 95% CL between [0.030 - 0.305] fb on (320, 1300) - (220, 1000) GeV.
- Using the signal from MC directly on the fit instead of DSCB+Gaussian function.
- Adding a systematic on the signal shape: modifying the nominal by the resolution and scale



- $\sigma \times B(A \rightarrow ZH) \times B(H \rightarrow ZZ) \times B(ZZ \rightarrow 4l)$ for the left
- $\sigma \times B(A \rightarrow ZH) \times B(H \rightarrow ZZ) \times B(ZZZ \rightarrow 4l)$ for the right





- All the problem have been fixed and we scheduled a meeting EB next Monday, 26.