

Weekly report

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VBF Higgs CP

Feedback from Hgam group

- OO distribution has some structure in peak. Using 2SCB might be not well-modeled.
Alternative: $m_{\gamma\gamma}$ PDF in different OO bins.
- Data-MC mismatch: Pythia sample may have such problem, can try other hadronization sample.
- Consider EFT term in $H \rightarrow \gamma\gamma$ decay. $\text{BR}(H \rightarrow \gamma\gamma)$ should also change.

HGTD simulation

A plenary and approval meeting tonight:

<https://indico.cern.ch/event/868022/>

MVA optimization

VBF significance

Scenario	σ_{VBF}	Improvement
ITK	14.58 ± 0.25	0
rmfwdPU	18.18 ± 0.35	24.7%

VBF S/B ratio

Scenario	$S/(B_1 + B_2)$	Improvement
ITK	0.391 ± 0.016	0
rmfwdPU	0.496 ± 0.028	26.85%

