

Status of $hh \rightarrow WW\gamma\gamma$

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Event Yields

- Continuum background extracted from sideband

$$- B = \frac{\epsilon_{\gamma\gamma}^B}{1-\epsilon_{\gamma\gamma}^B} \times 9 = 1.44$$

- SM Higgs background: as shown in the right table
- $S = \epsilon \times L \times \sigma \times \text{Br}(hh \rightarrow WW\gamma\gamma \rightarrow jjlv\gamma\gamma) = 0.130$ (assuming $\sigma = 1\text{pb}$)

Process	Xsec [pb]	Events Yield
ttH	0.5085	0.029
ggH	43.92	0.036
VBF	3.748	0.0030
WH	1.380	0.071
ZH	0.8696	0.034

$$p_{\mu}^T > 10\text{GeV}, p_e^T > 10\text{GeV}$$

Limits - non-res/toys

- Without sys

expected limit (+2 sig) 7.83717

expected limit (+1 sig) 5.66231

expected limit (median) 3.92039

expected limit (-1 sig) 3.02555

expected limit (-2 sig) 2.83717

