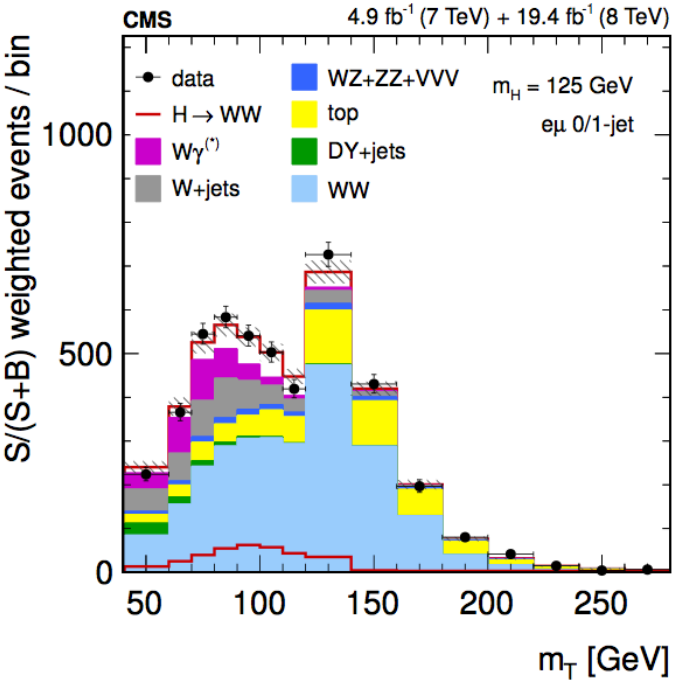
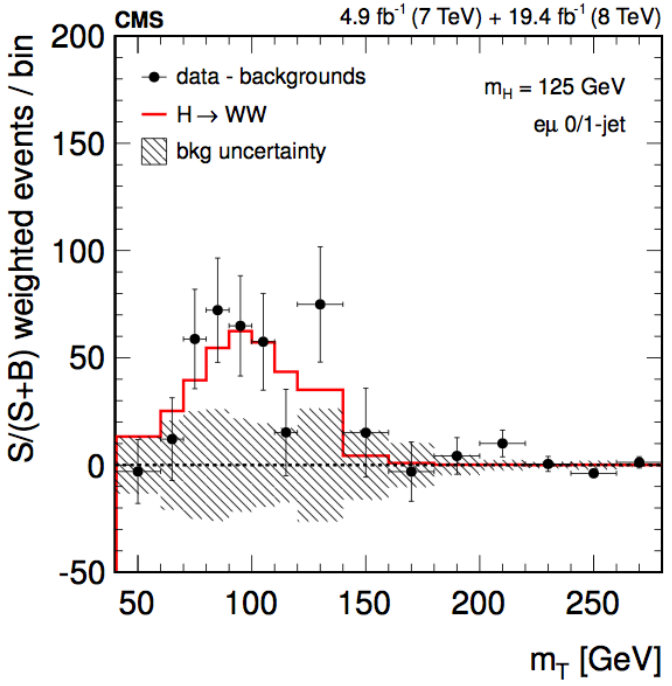
H→WW

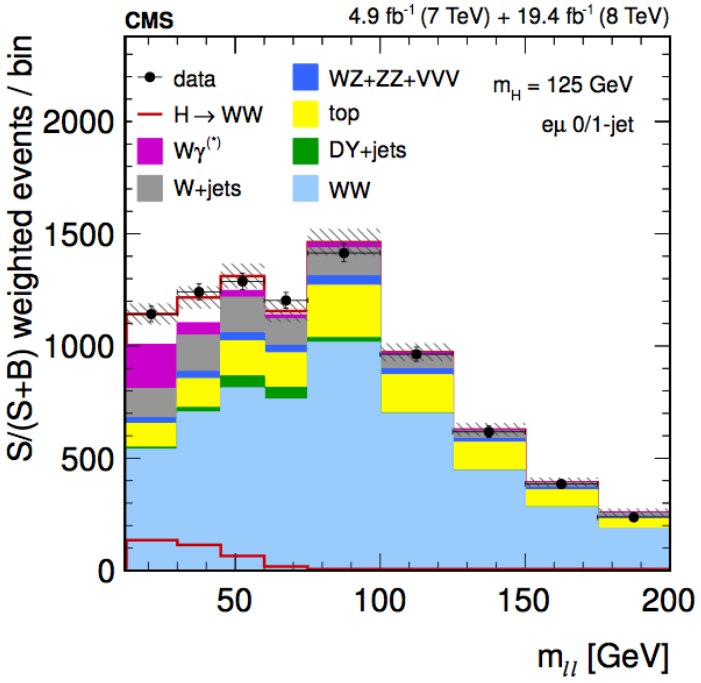
Overview of results

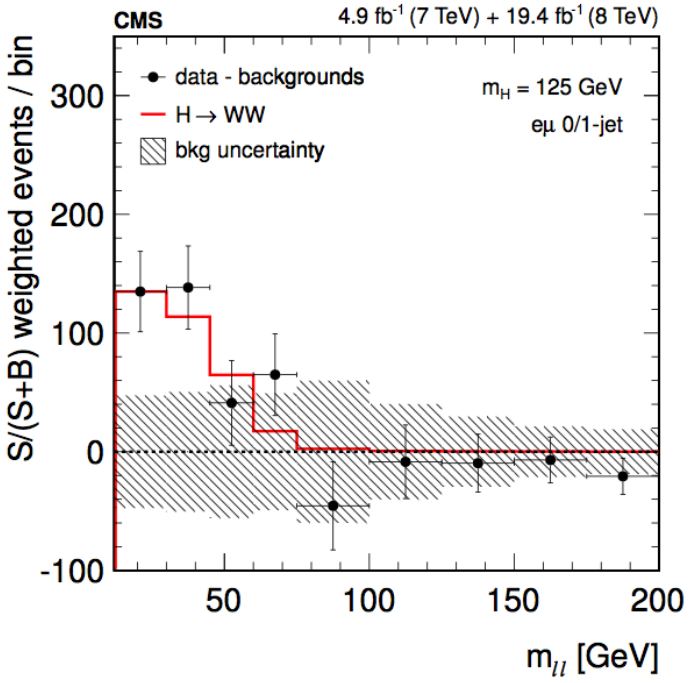
H→WW legacy paper
arXiv:1312.1129
JHEP 01 (2014) 096

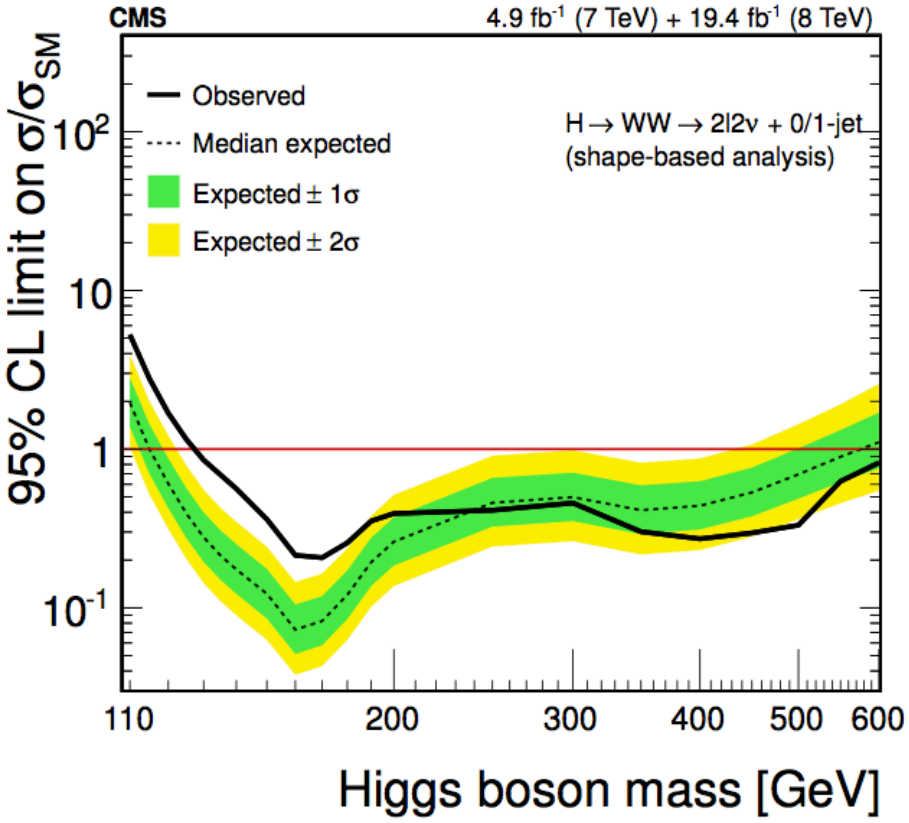




2L 0/1j







2L 0/1j

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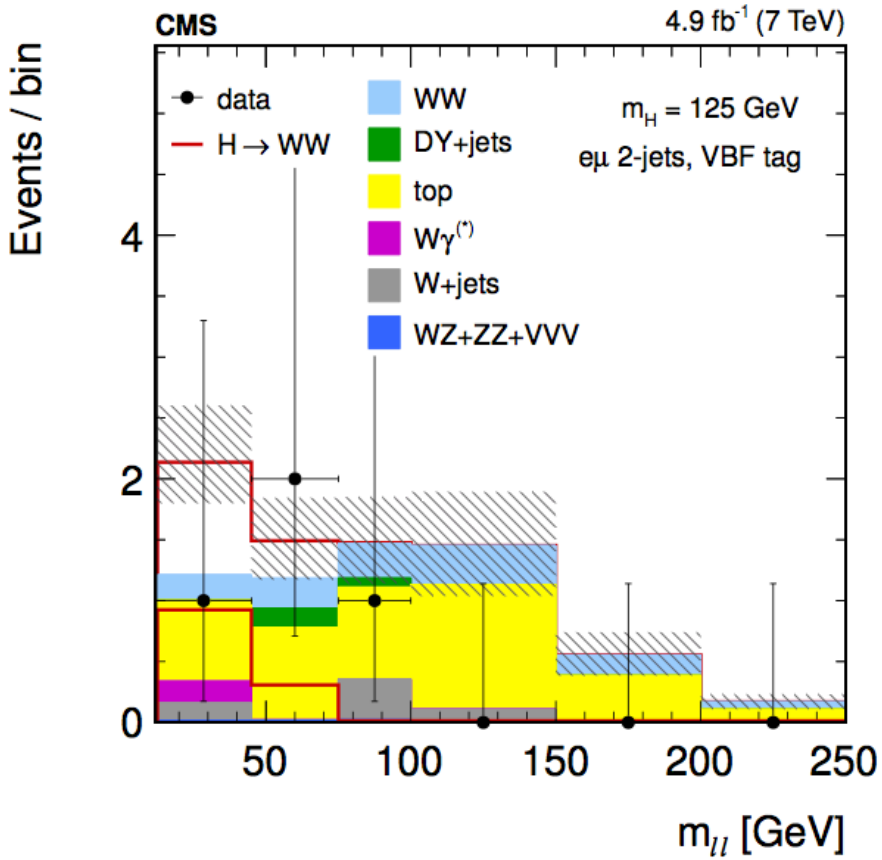
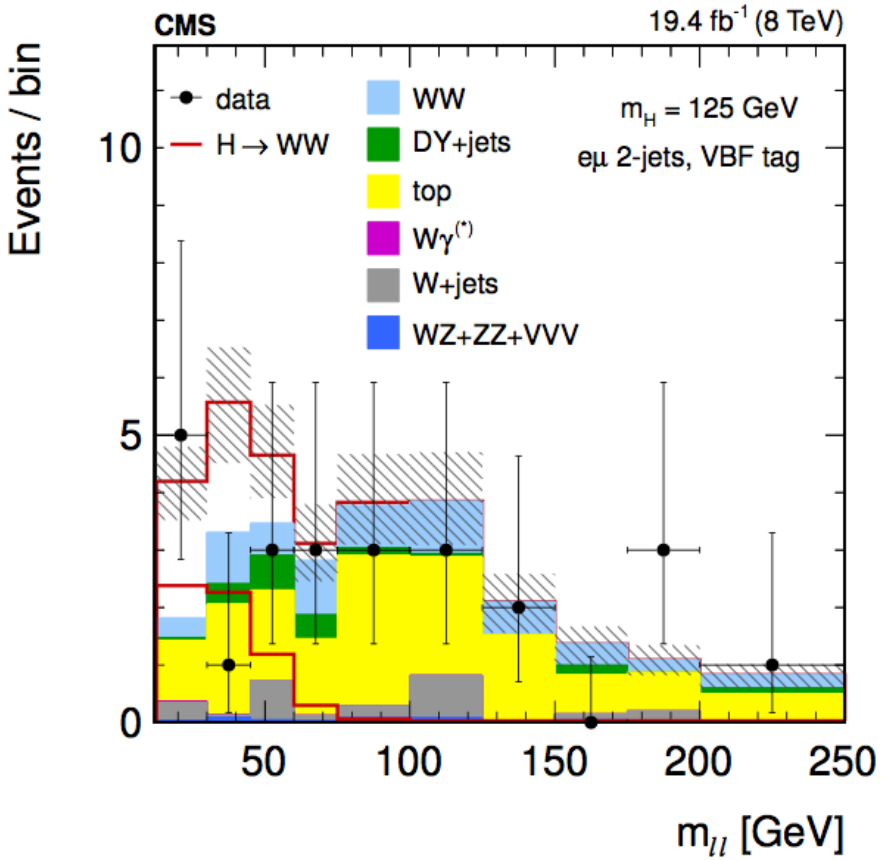
0/1-jet analysis $m_H = 125\,\text{GeV}$	95% CL limits on σ/σ_{SM} expected / observed	Significance expected / observed	σ/σ_{SM} observed
$(m_T, m_{\ell\ell})$ template fit (default)	0.4 / 1.2	5.2 / 4.0 sd	0.76 ± 0.21

2L VBF





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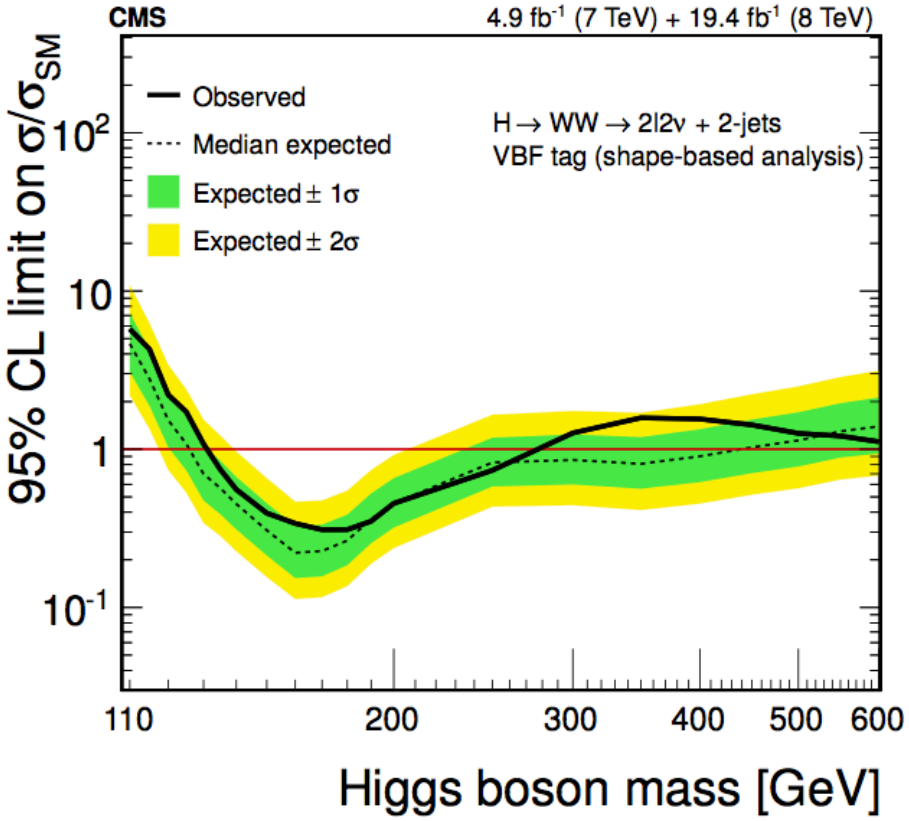

2L VBF

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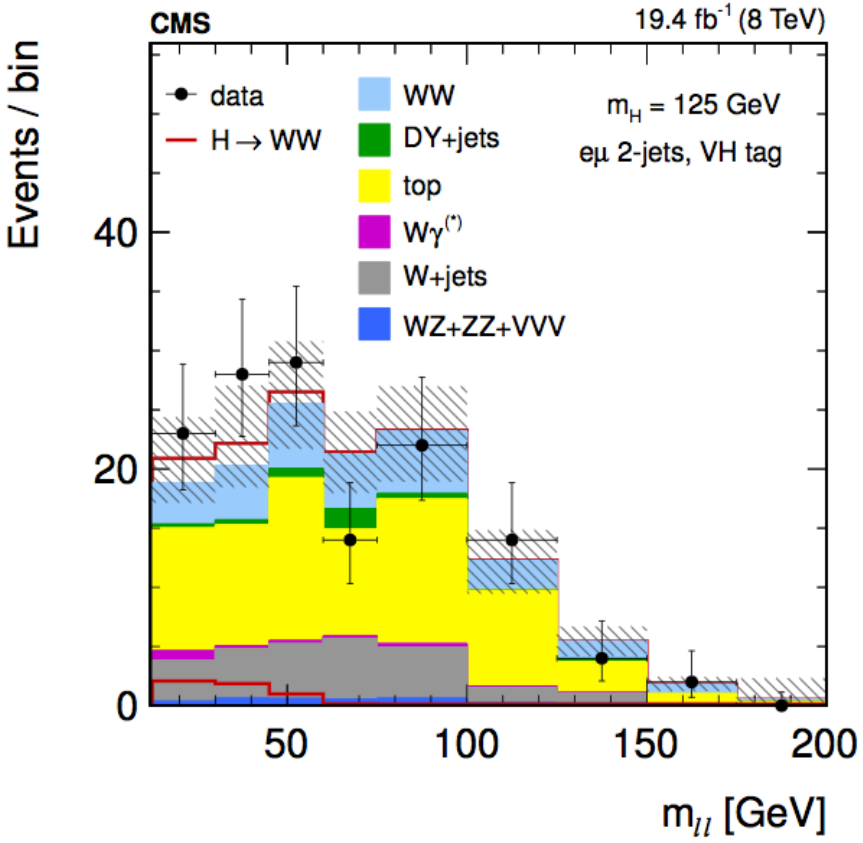
VBF analysis	95% CL limits on $\sigma/\sigma_{\mathrm{SM}}$	Significance	$\sigma/\sigma_{\mathrm{SM}}$
$m_{\mathrm{H}} = 125\,\mathrm{GeV}$	expected / observed	expected / observed	observed
Shape-based (default)	1.1 / 1.7	2.1 / 1.3 sd	$0.62^{+0.58}_{-0.47}$



2L VH

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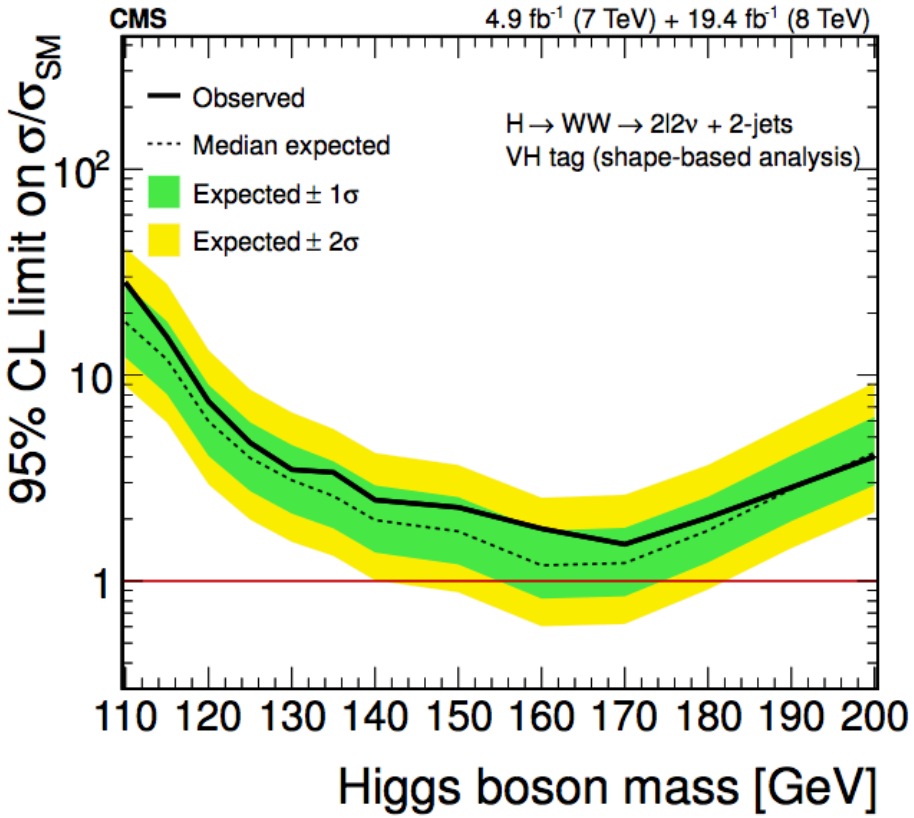

2L VH

H→WW legacy paper
arXiv:1312.1129
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VH analysis $m_H = 125\,\text{GeV}$	95% CL limits on σ/σ_{SM} expected / observed	Significance expected / observed	σ/σ_{SM} observed
Counting analysis (default)	4.1 / 4.5	0.6 / 0.2 sd	$0.40^{+2.03}_{-1.93}$

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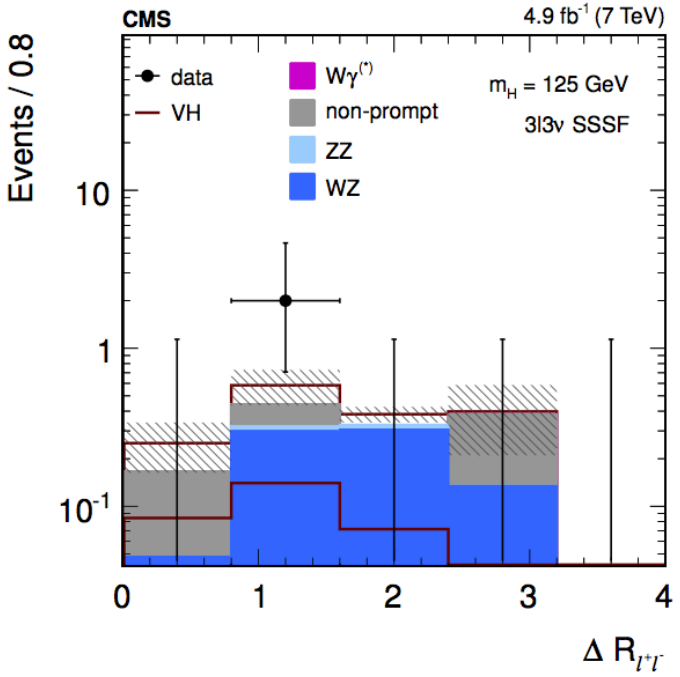
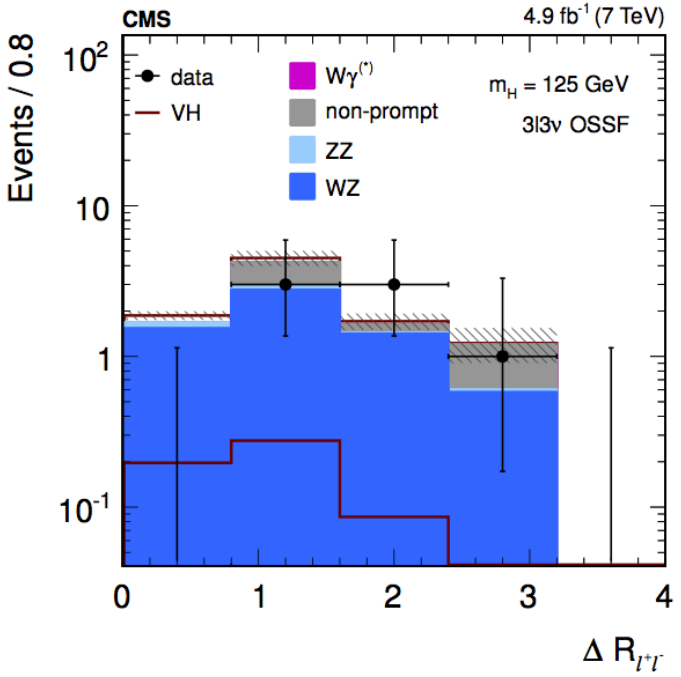
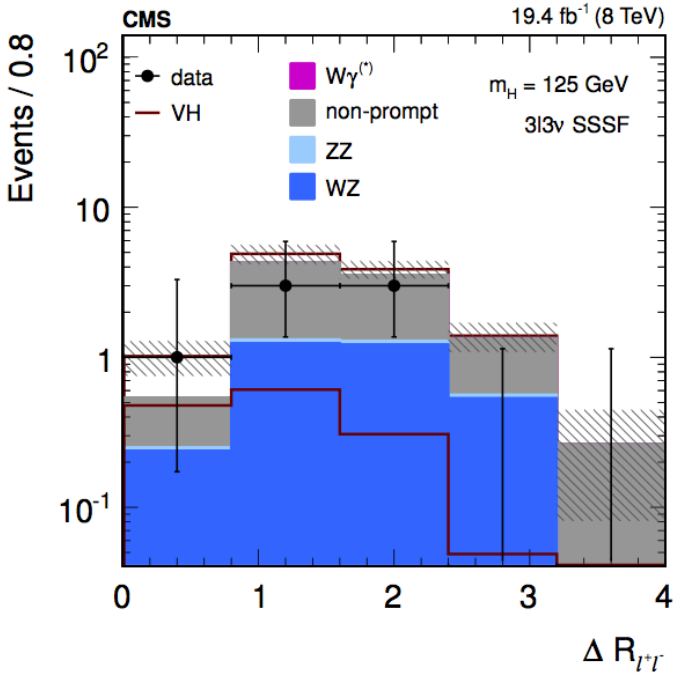
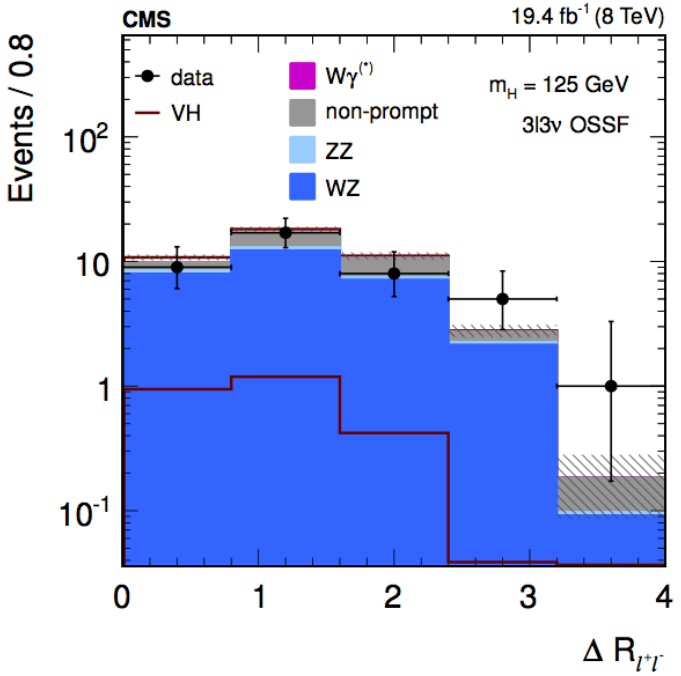
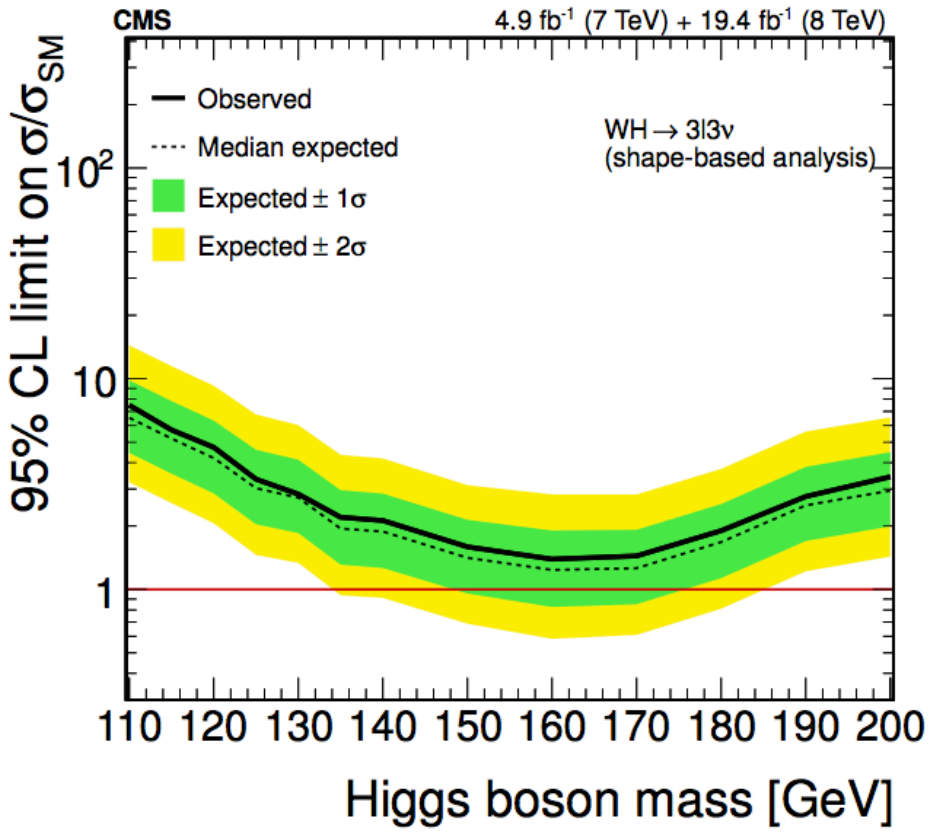




3L WH





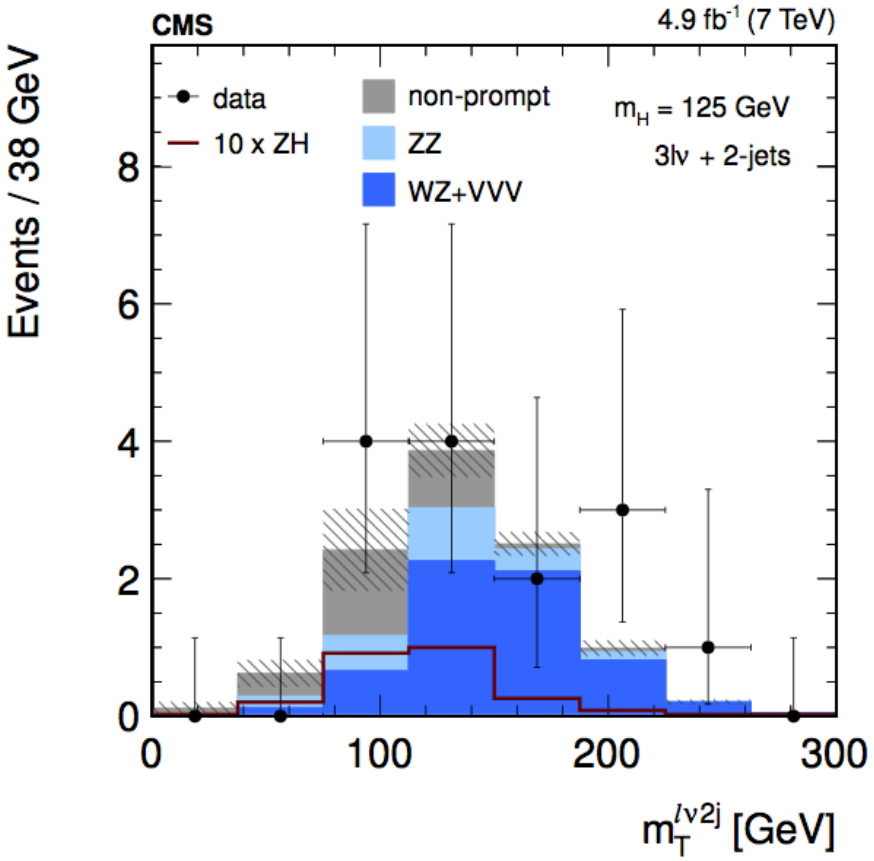


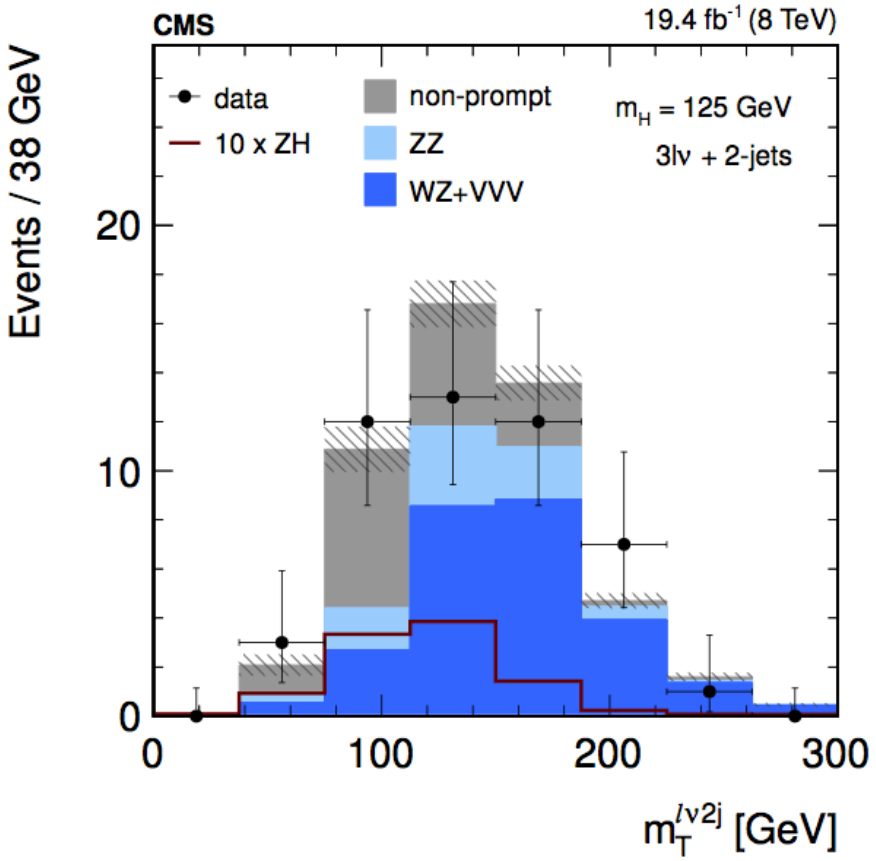
3L WH

H→WW legacy paper
arXiv:1312.1129
JHEP 01 (2014) 096

$WH \to 3\ell 3\nu$ analysis $m_H = 125\,GeV$	95% CL limits on σ/σ_{SM} expected / observed	Significance expected / observed	σ/σ_{SM} observed
Shape-based (default)	3.0 / 3.3	0.7 / 0.5 sd	$0.57^{+1.28}_{-0.97}$

3L ZH





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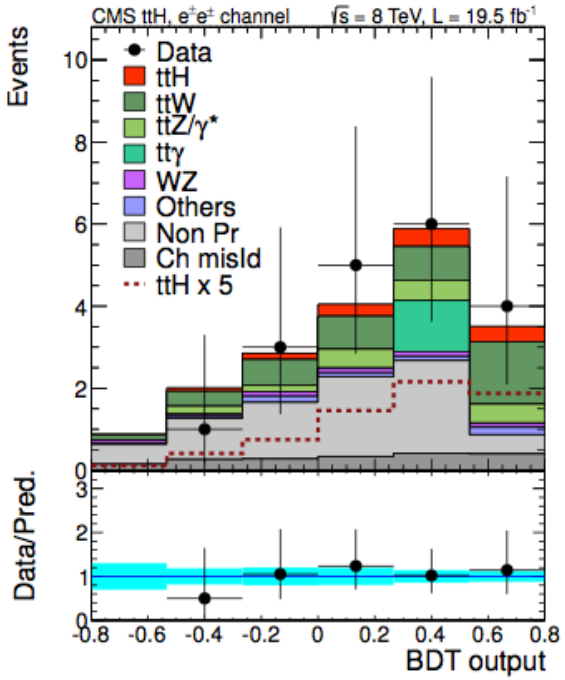
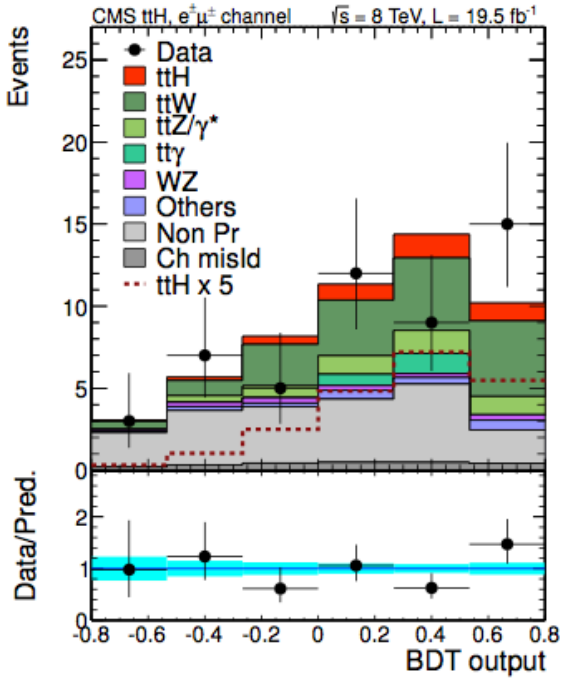
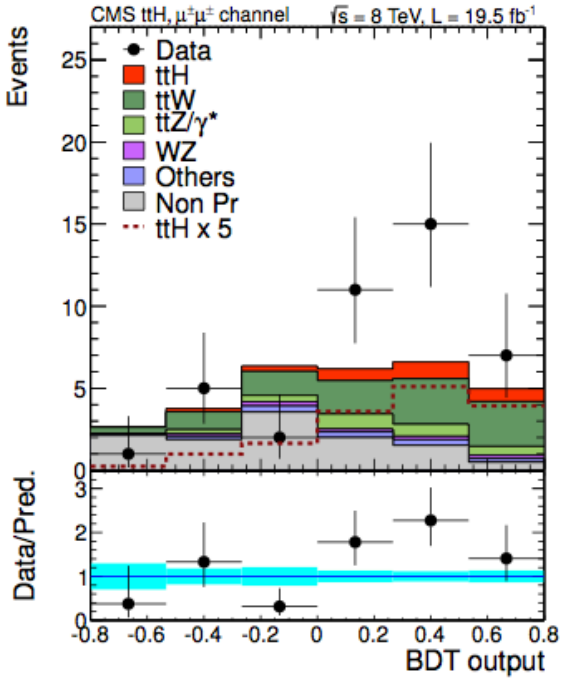
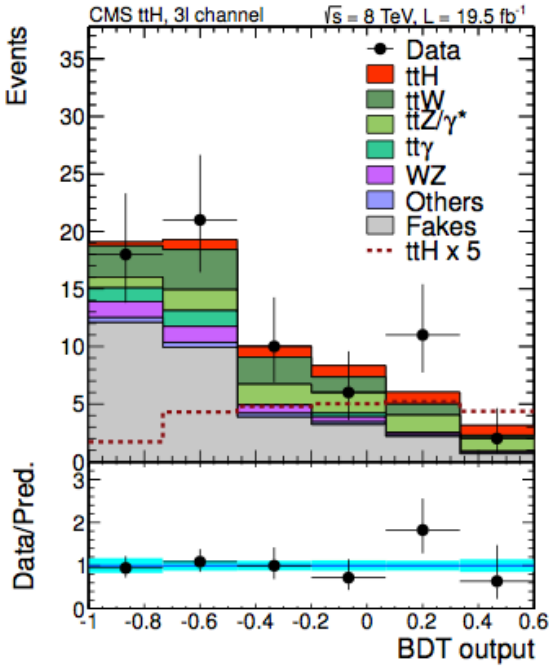
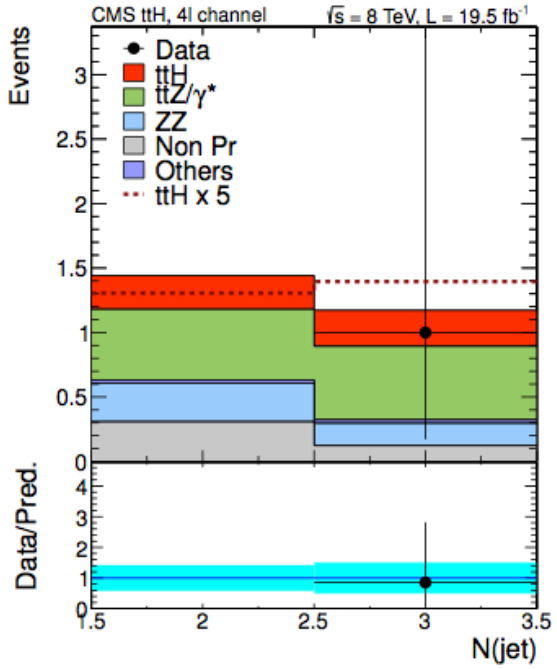




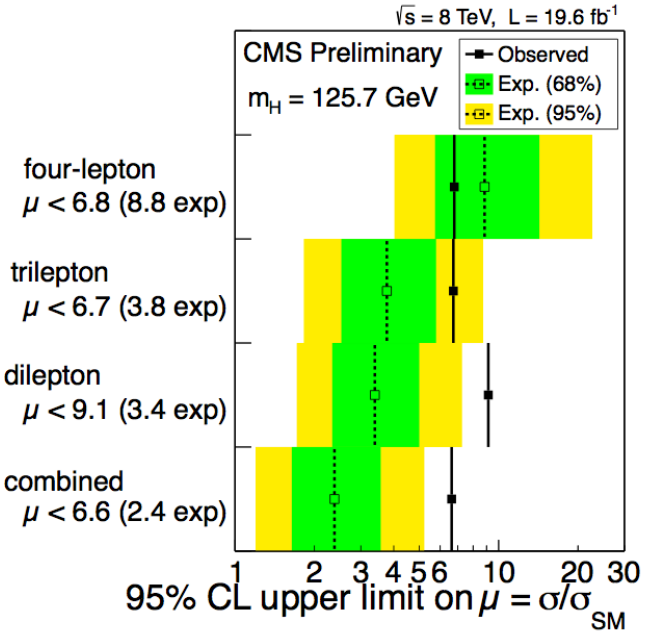


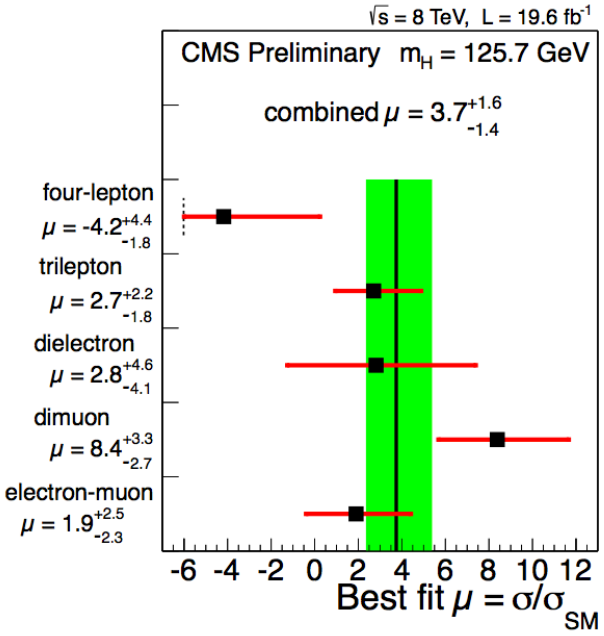




ttH paper
arXiv:1408.1682
JHEP 09 (2014) 087

ttH 2L-3L-4L



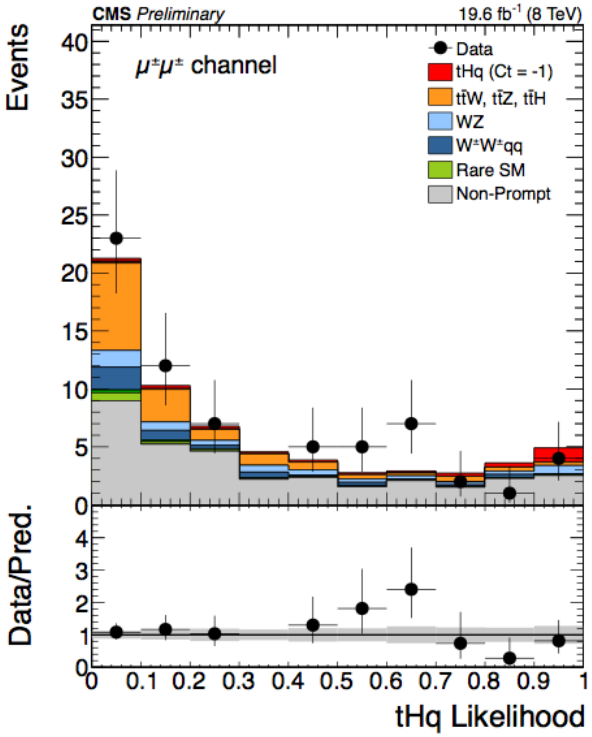


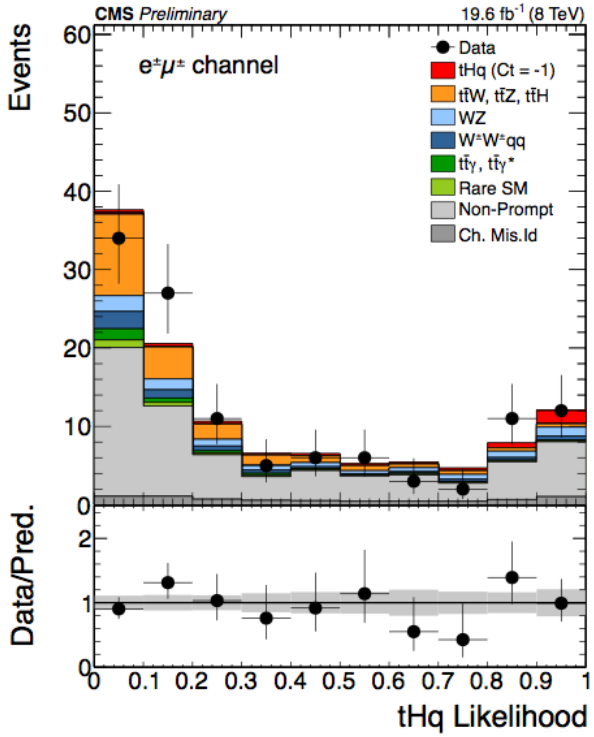
$t\bar{t}H$ channel	Best-fit μ	95% CL upper limits on $\mu = \sigma/\sigma_{SM}$ ($m_H = 125.6$ GeV)				
			Expected			
	Observed	Observed	Median signal-injected	Median	68% CL range	95% CL range
4l	$-4.7^{+5.0}_{-1.3}$	6.8	11.9	8.8	[5.7, 14.3]	[4.0, 22.5]
3l	$+3.1^{+2.4}_{-2.0}$	7.5	5.0	4.1	[2.8, 6.3]	[2.0, 9.5]
Same-sign 2l	$+5.3^{+2.1}_{-1.8}$	9.0	3.6	3.4	[2.3, 5.0]	[1.7, 7.2]

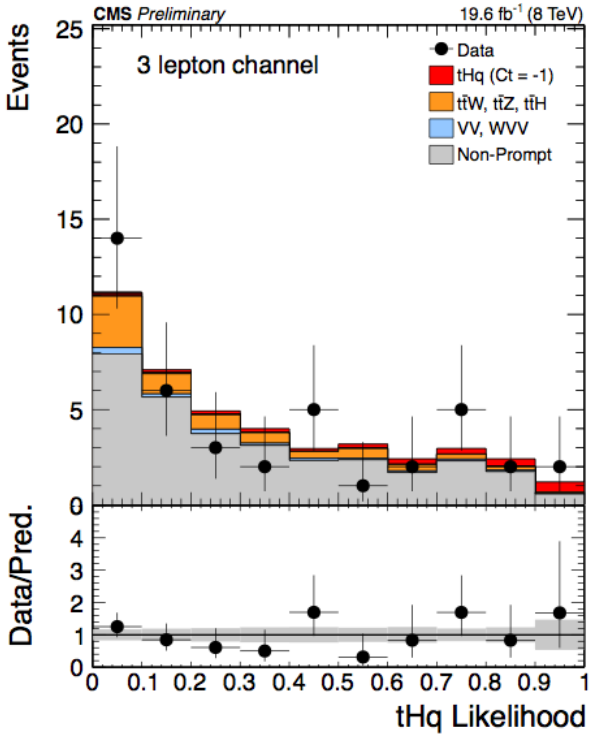
ttH paper
arXiv:1408.1682
JHEP 09 (2014) 087

ttH 2L-3L-4L

tHq 2L-3L
Signal assuming Ct =-1







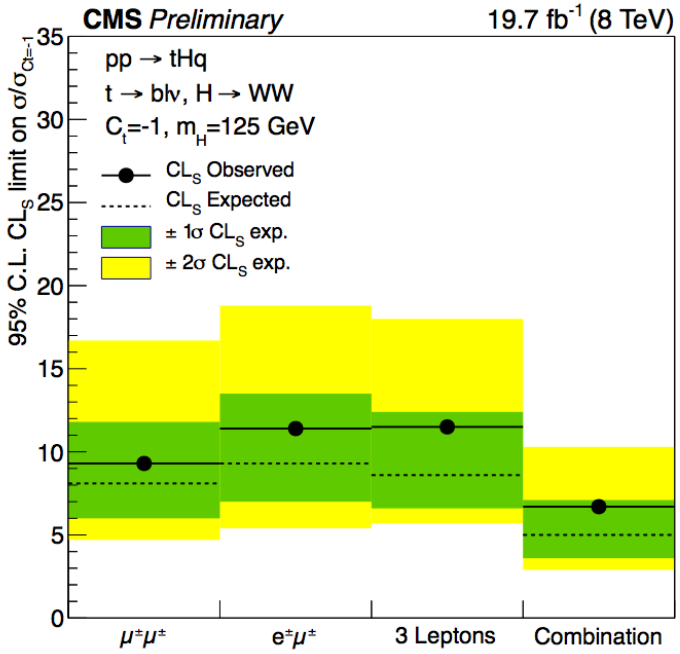
tH paper

Coming soon (see Ken Bloom's talk at DPF)

H→WW tHq PAS public

HIG-14-026

tHq 2L-3L
Signal assuming Ct =-1



Channel	Observed	Expected	68% prob. band	95% prob. band
SS $\mu\mu$	9.3	8.1	[6.0, 11.8]	[4.7, 16.7]
SS $e\mu$	11.4	9.3	[7.0, 13.5]	[5.4, 18.8]
3ℓ	11.5	8.6	[6.6, 12.4]	[5.7, 18.0]
combined	6.7	5.0	[3.6, 7.1]	[2.9, 10.3]

tH paper

Coming soon (see Ken Bloom's talk at DPF)

H→WW tHq PAS public

HIG-14-026