SEARCHES FOR SUSY AT CMS

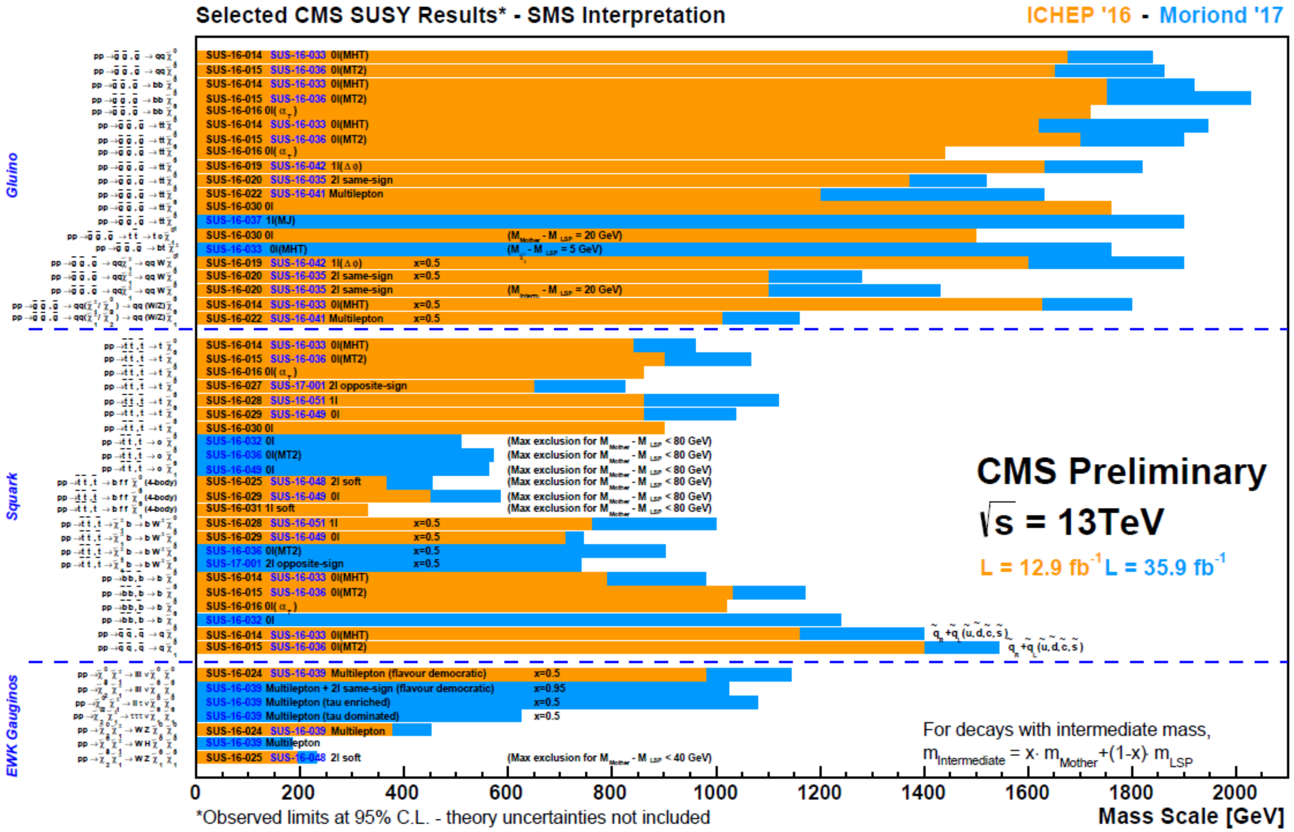
ANDREW ASKEW

FOR THE CMS COLLABORATION

OVERVIEW:

- Where we are: 2018 is the last year of data taking for LHC Run II
  - I will attempt to concentrate on the most recent results in searching for SUSY, in the short amount of time I have.
- Where we're going:
  - There is a vast expanse of LHC data yet to be taken and explored!

I WON'T WASTE TIME:



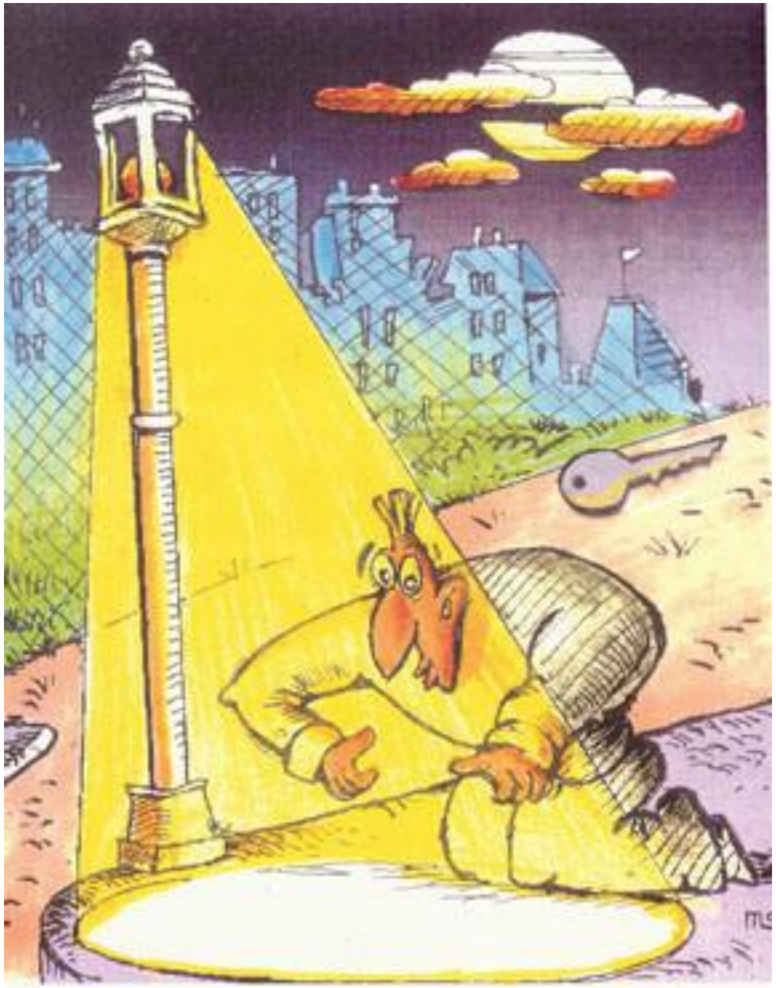
*Observed limits at 95% C.L. - theory uncertainties not included

Only a selection of available mass limits. Probe *up to* the quoted mass limit for $m_{LSP} \approx 0$ GeV unless stated otherwise

- Here is almost everything.

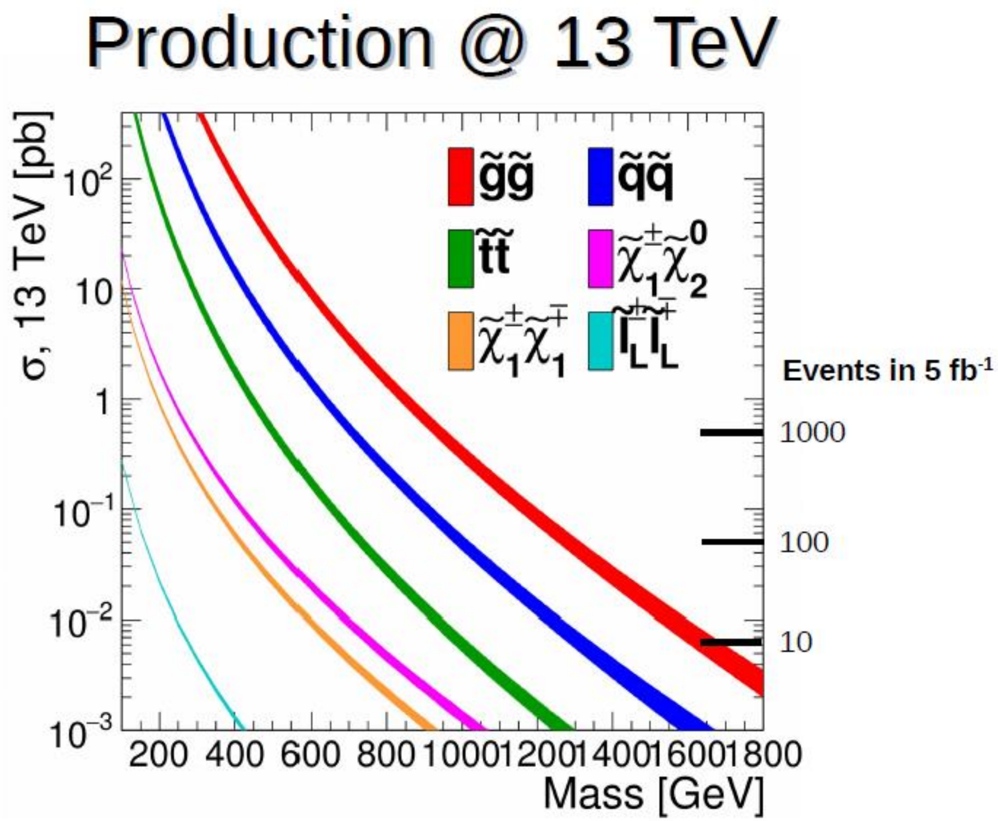
WHERE TO LOOK?

- I fully admit to having stolen this from a theory talk preRun I.
- Why look under the lamp-post? That's where the light is.
- As we gain more data, the illuminated circle, so to speak, widens and allows us access to regions we couldn't see before.
- We also become able to exploit the data in new and innovative ways.



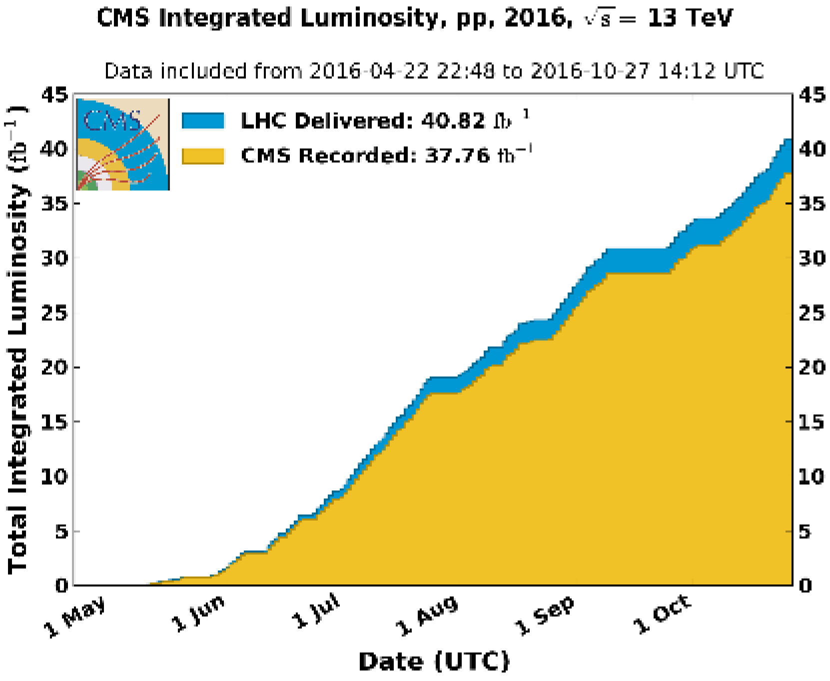
INTO THE LHC

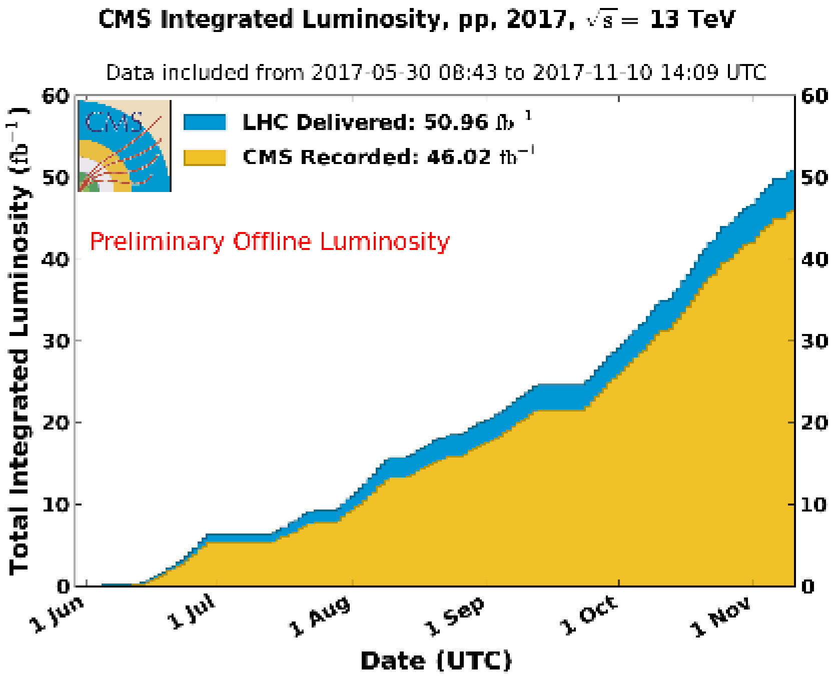
- This is just meant to give a hint of why we've done what we've done.
- Clearly if you want to look for the highest cross sections you start with gluinos and squarks.
- Where we are now, we're starting to eat into the space of the weak-inos.



https://twiki.cern.ch/twiki/bin/view/LHCPhysics/SUSYCrossSections

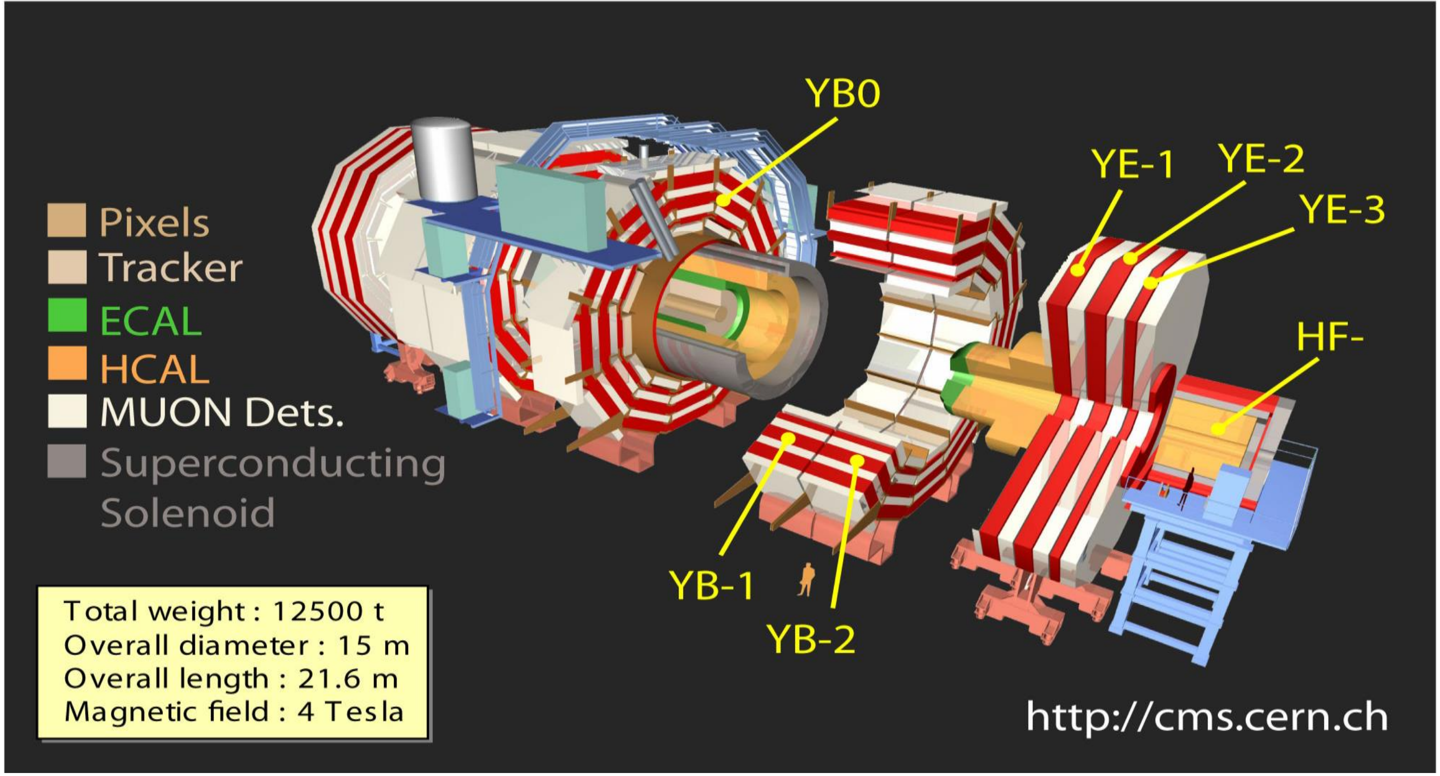
RUN II PROGRESS:





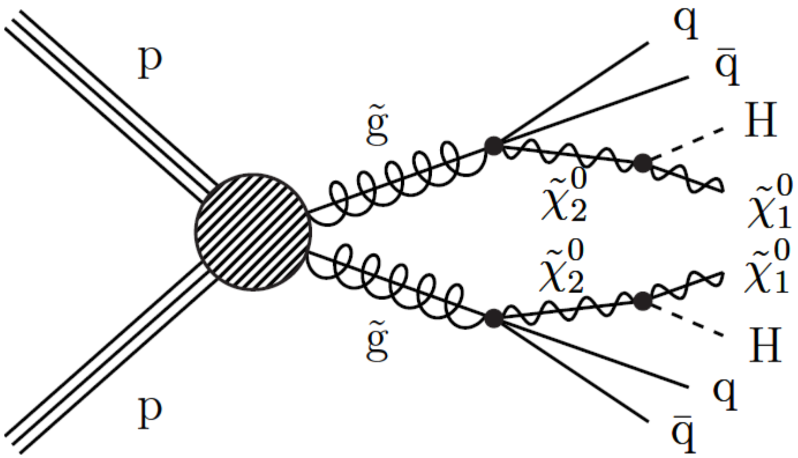
- LHC continues to provide a huge amount of data.
- Even better is expected for 2018.

NEVER COMPLETE WITHOUT:



- An experimental talk is never complete without the star of our show.

SUSY WITH HADRONIC HIGGS

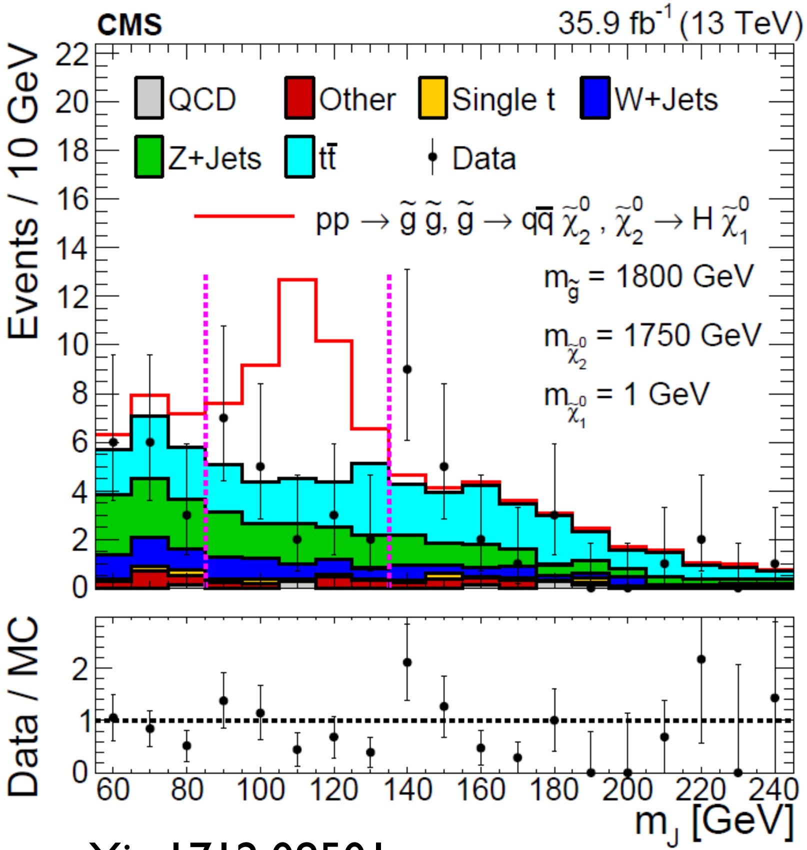


- This, of course, is still strong production of high mass gluinos. Higgs→ bb is a tough job, made possible in this instance by having both quark jets boosted into a single object.

arXiv:1712.08501

THE ACTUAL RESULT PLOT

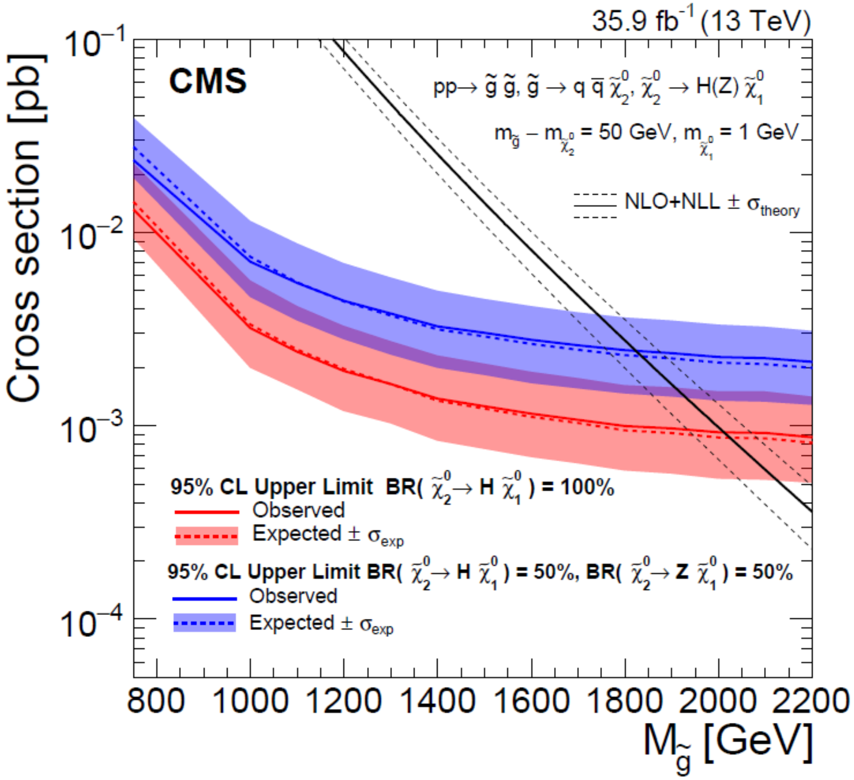
- One potential scenario is shown here, high mass gluino with small mass splitting to the neutralino(2) which in turn decays to a Higgs and a low mass neutralino(1).



arXiv:1712.08501

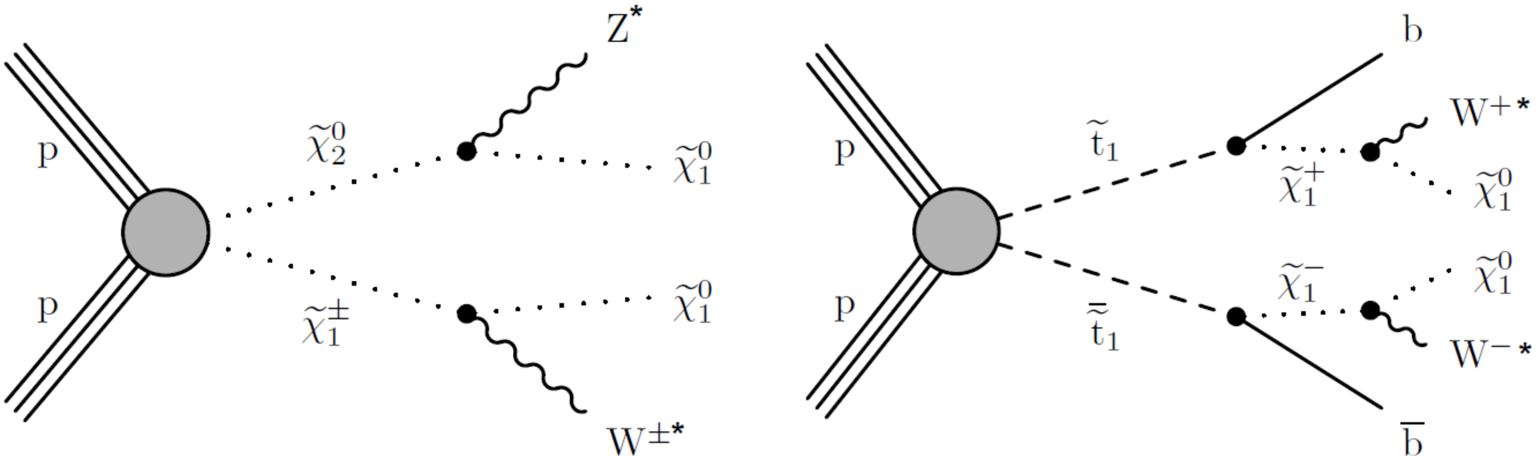
LIMITS

- Having seen the previous plot, there’s no sign of an excess, and thus limits are set on the mass of the gluino in this scenario.



arXiv:1712.08501

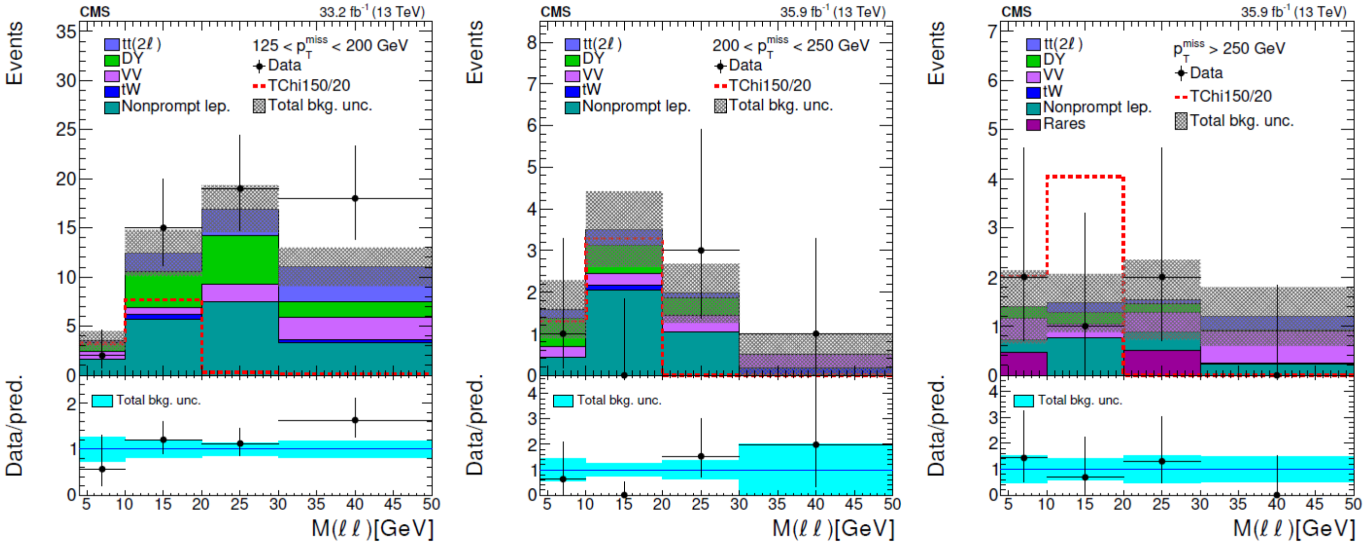
SOFT LEPTONS



- Here we consider the final state in which there are low transverse momentum leptons. This is motivated both by small mass splitting scenarios (SUSY is there, but we're not seeing it), and low mass stop production (needed for naturalness).
- Nothing is easy about this.

arXiv:1801.01846

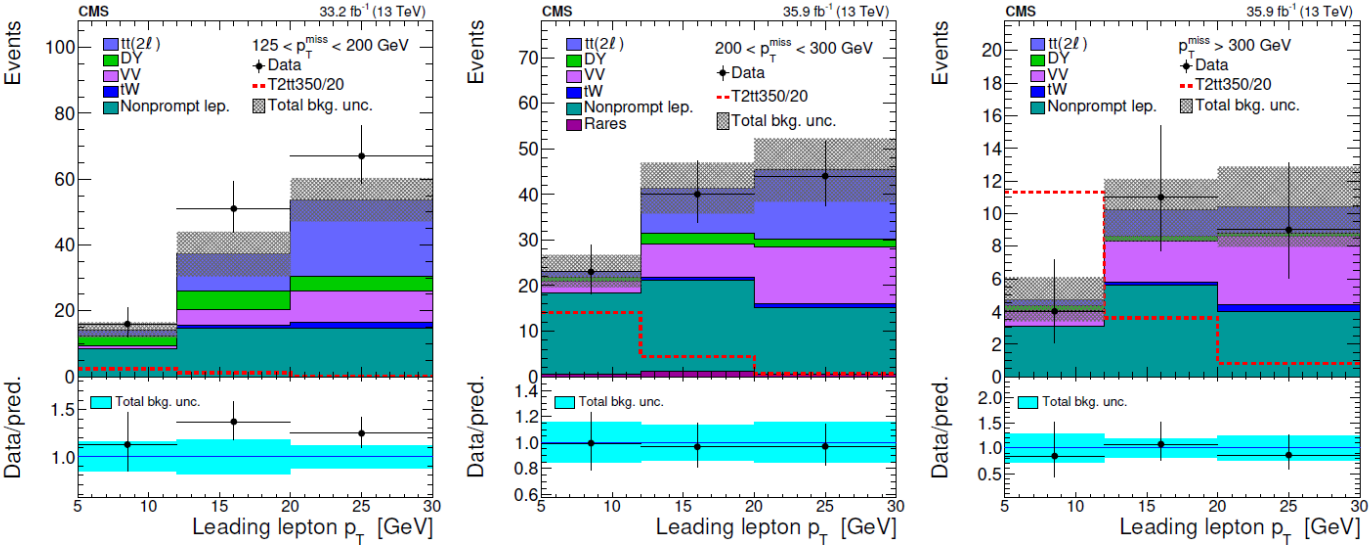
SOFT LEPTONS



- Significant backgrounds are top, DY+jets. Again, as is custom, data control samples in the sidebands are constructed to help estimate these contributions (b-jet veto inverted, di-τ mass cuts).

arXiv:1801.01846

SOFT LEPTONS

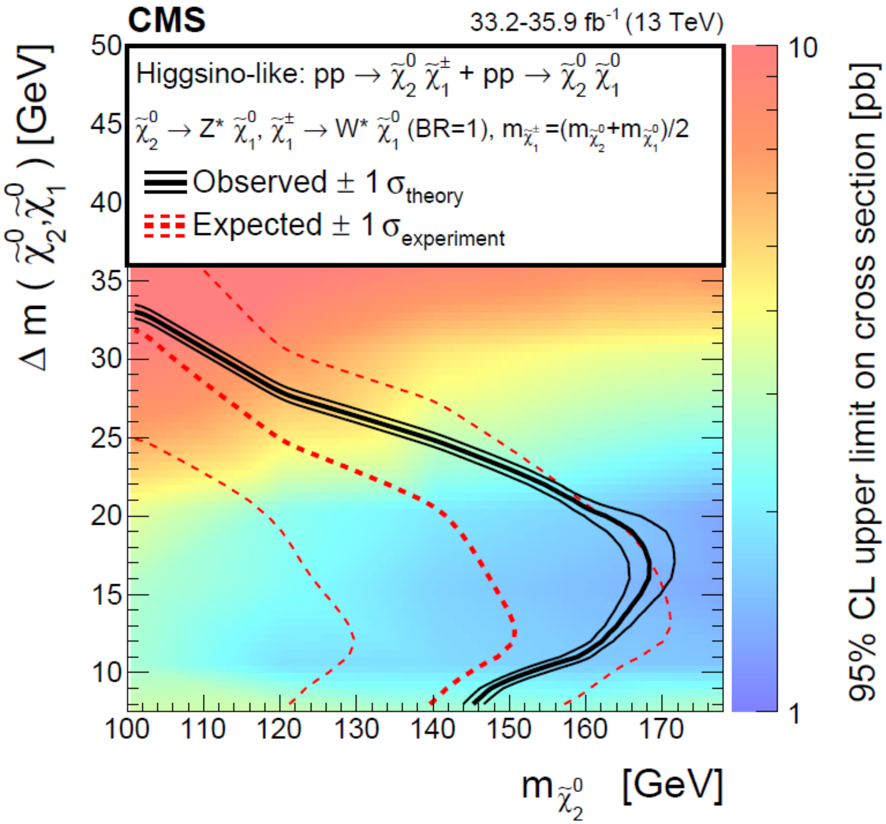


- I show this just to partially emphasize exactly how low momentum we're expecting here.

arXiv:1801.01846

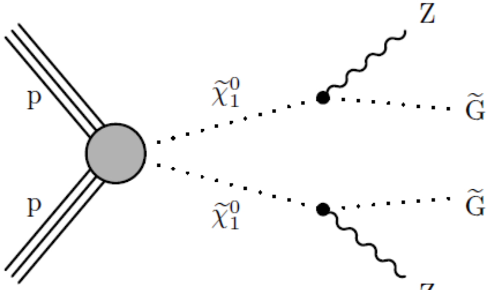
A PARTICULAR SET OF LIMITS

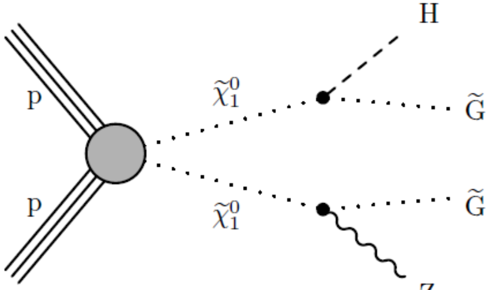
- Here is one of the limit plots from this analysis. One can see the observed limits are better than the expected, due to what seems like a fluctuation down in the data.

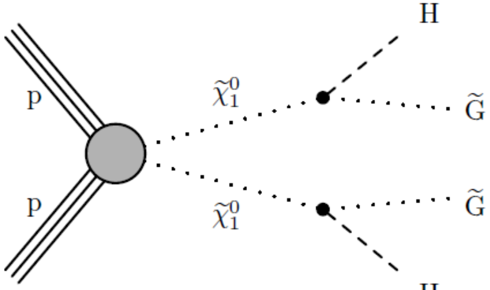


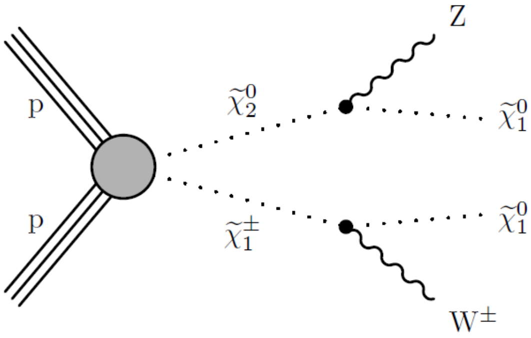
arXiv:1801.01846

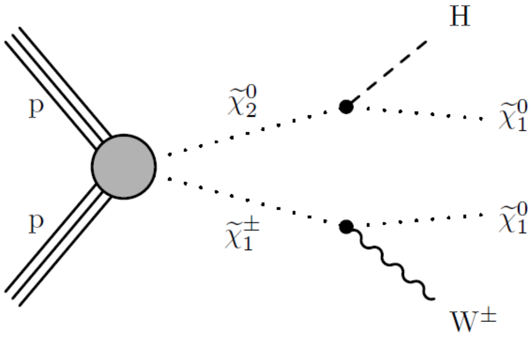
EWK COMBINATION+WZ











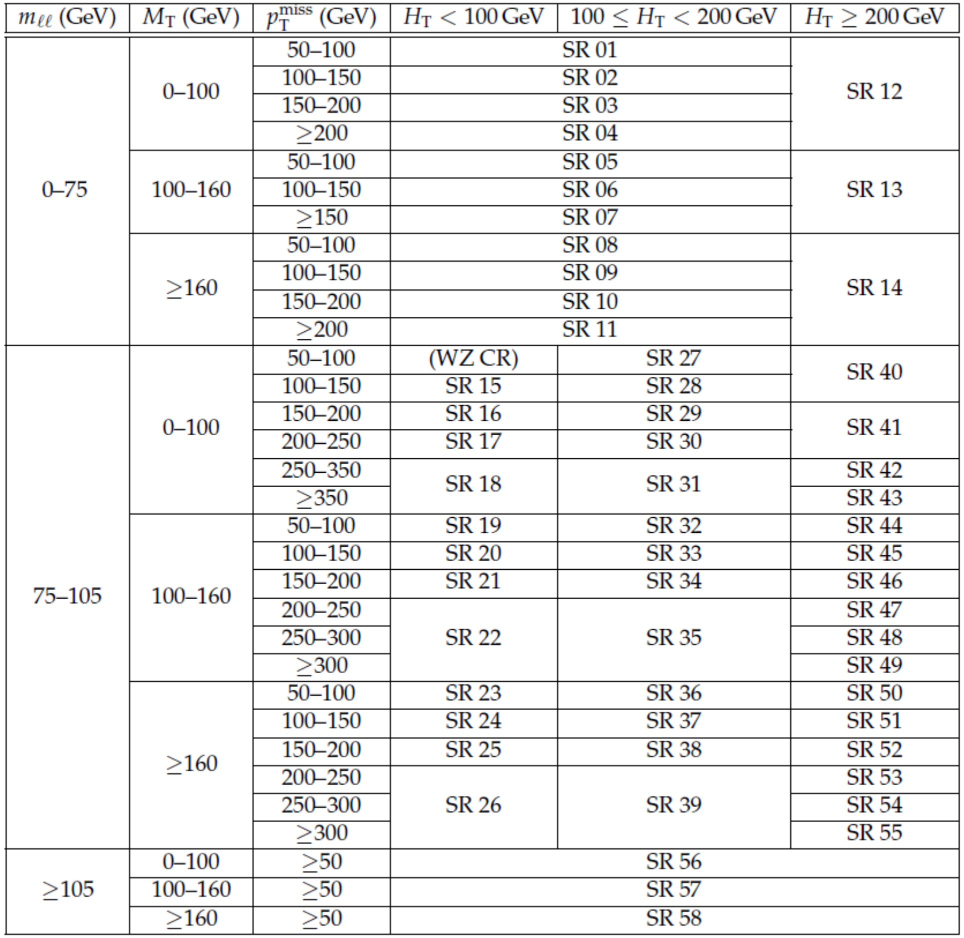
arXiv: 1801.03957

- This result is not only a combination of a number of different results, it is a reoptimization in the region where the SM WZ background caused a loss in sensitivity.

	Signal topology				
Search	WZ	WH	ZZ	ZH	HH
1ℓ 2b		✓			
4b					✓
2ℓ on-Z	✓		✓	✓	
2ℓ soft	✓				
$\geq 3\ell$	✓	✓	✓	✓	✓
$H(\gamma\gamma)$		✓		✓	✓

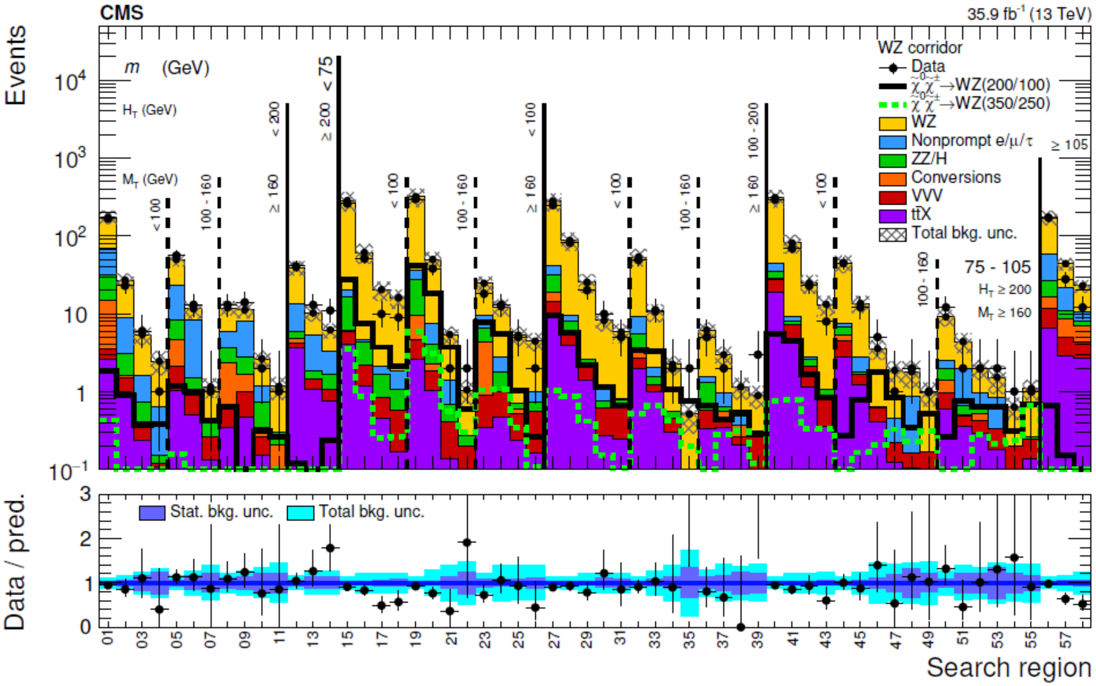
FINE GRAINED?

- I show you this not because I think you’ll be able to read it, but really just to demonstrate the amount of effort in combing through phase space for this analysis.
- In my opinion, pretty amazing.



$m_{\ell\ell}$ (GeV)	M_T (GeV)	p_T^{miss} (GeV)	$H_T < 100\,\text{GeV}$	$100 \leq H_T < 200\,\text{GeV}$	$H_T \geq 200\,\text{GeV}$
0–75	0–100	50–100	SR 01		SR 12
		100–150	SR 02		
		150–200	SR 03		
		≥200	SR 04		
	100–160	50–100	SR 05		SR 13
		100–150	SR 06		
		≥150	SR 07		
	≥160	50–100	SR 08		SR 14
		100–150	SR 09		
		150–200	SR 10		
		≥200	SR 11		
75–105	0–100	50–100	(WZ CR)	SR 27	SR 40
		100–150	SR 15	SR 28	
		150–200	SR 16	SR 29	SR 41
		200–250	SR 17	SR 30	
		250–350	SR 18	SR 31	SR 42
		≥350			SR 43
	100–160	50–100	SR 19	SR 32	SR 44
		100–150	SR 20	SR 33	SR 45
		150–200	SR 21	SR 34	SR 46
		200–250	SR 22	SR 35	SR 47
		250–300			SR 48
		≥300			SR 49
	≥160	50–100	SR 23	SR 36	SR 50
		100–150	SR 24	SR 37	SR 51
		150–200	SR 25	SR 38	SR 52
		200–250	SR 26	SR 39	SR 53
		250–300			SR 54
		≥300			SR 55
≥105	0–100	≥50	SR 56		
	100–160	≥50	SR 57		
	≥160	≥50	SR 58		

RESULTS

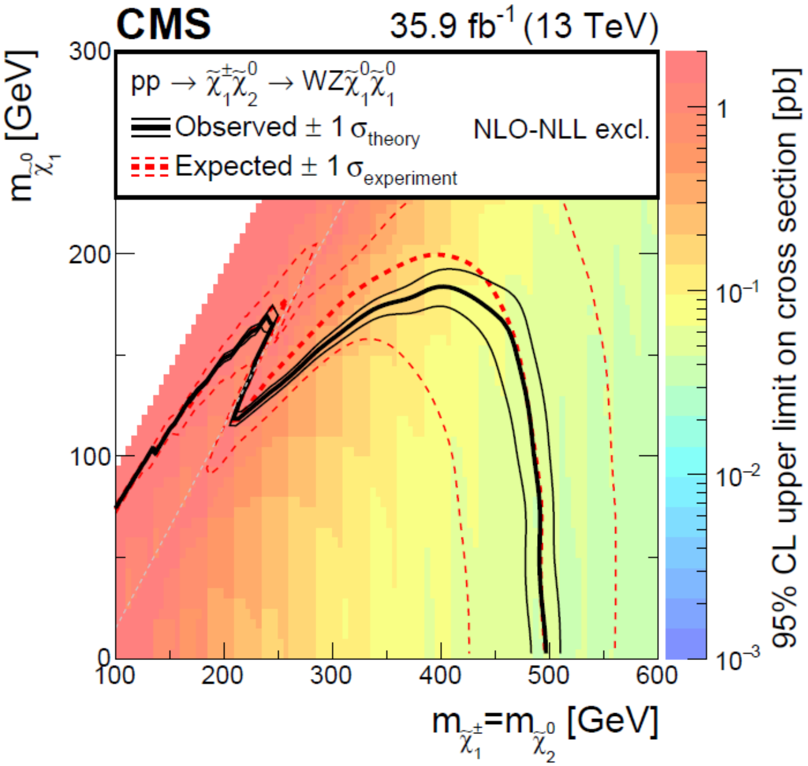


arXiv: 1801.03957

- This again, is the real result, observed and expected by the various signal regions.

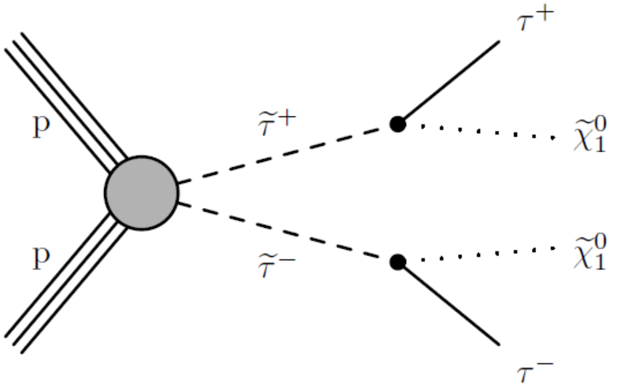
LIMITS

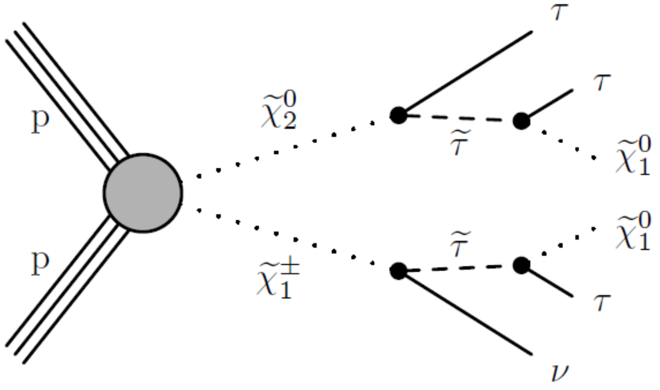
- One limit result, you can clearly see both in the expected and observed limit the improved sensitivity.



arXiv: 1801.03957

STAU

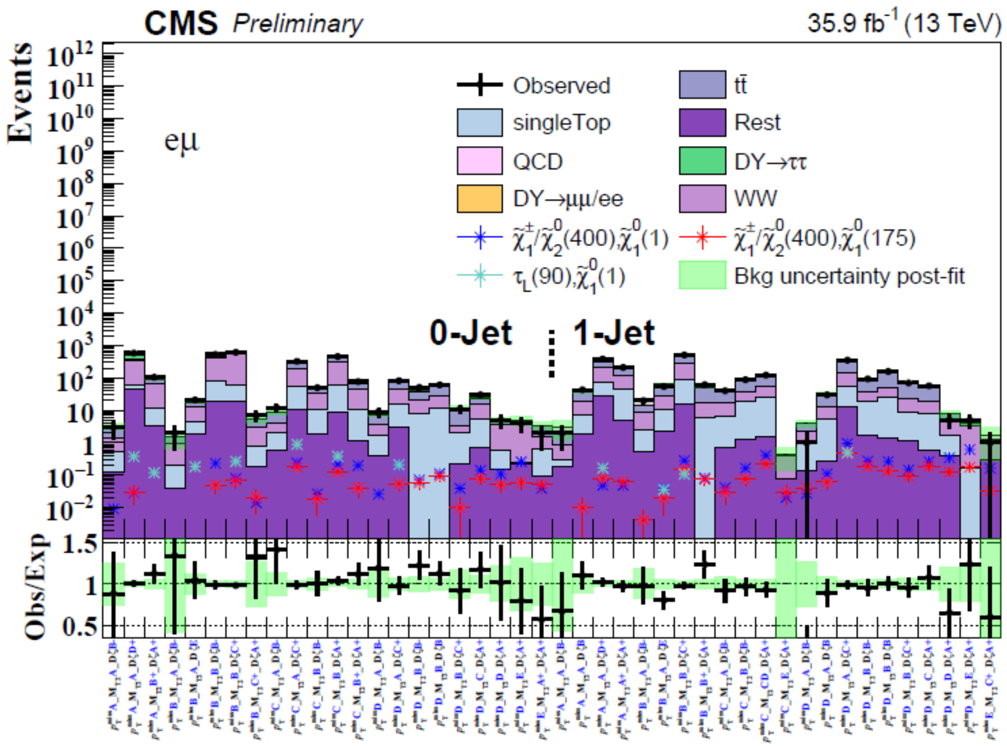




- Search for stau production with decay in $e\tau_{had}$, $\mu\tau_{had}$, $e\mu$. Both direct production of staus and chargino/neutralino production

CMS-SUS-17-002

STAU

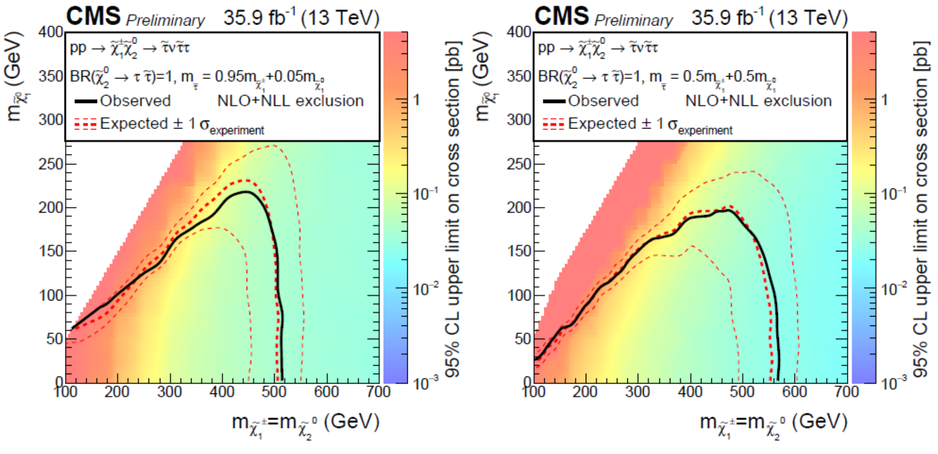


- Three channels each with multiple different signal regions is a lot to display. I chose to just show eμ here.

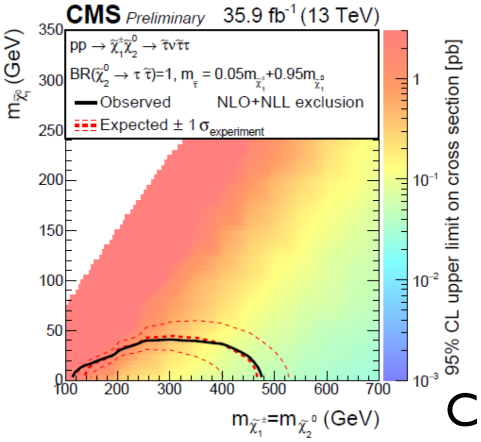
CMS-SUS-17-002

STAU LIMITS

- Limits are placed for the chargino-neutralino production. No direct production could be excluded at this point.

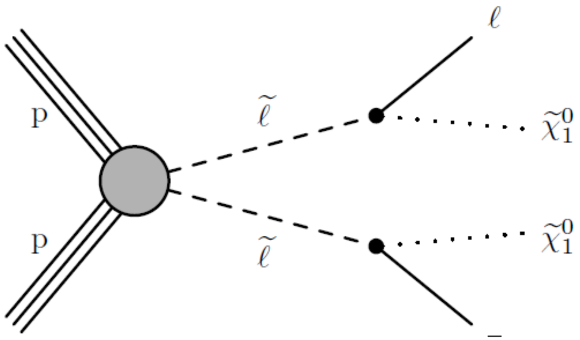


(a) (b)



CMS-SUS-17-002

SMUON AND SELECTRON



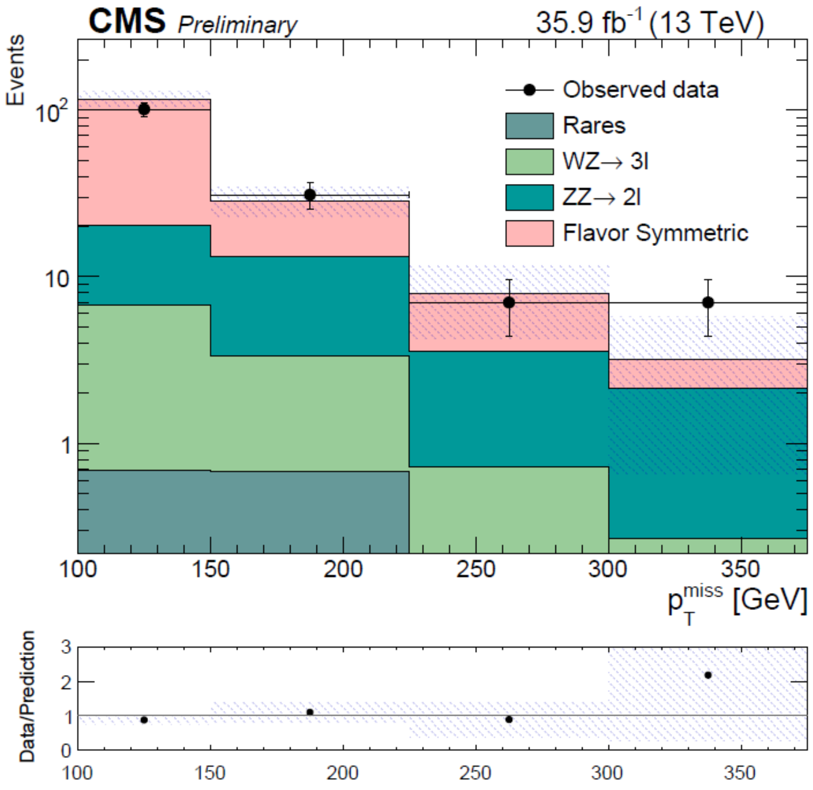
- Look for events with the same flavor, opposite charge leptons (e/μ). Select on invariant mass (no SM resonances please), MT2, number of jets (veto on jet activity).

CMS-SUS-17-009

RESULTS

- Missing transverse energy for the signal region.

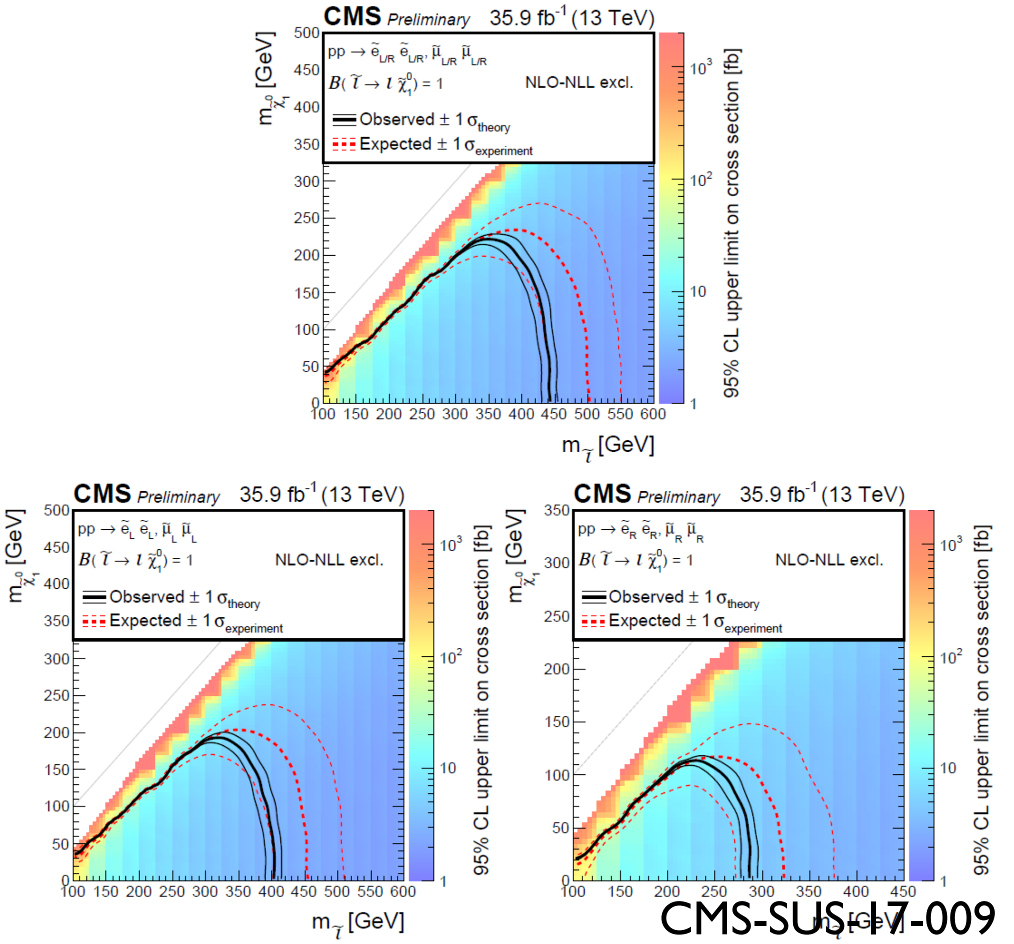
p_T^{miss} [GeV]	100-150	150-225	225-300	300+
FS bkg.	96^{+13}_{-12}	$15.3^{+5.6}_{-4.5}$	$4.4^{+3.6}_{-2.3}$	$1.1^{+2.5}_{-1.0}$
ZZ	13.5 ± 1.5	9.78 ± 1.19	2.84 ± 0.56	1.86 ± 0.12
WZ	6.04 ± 1.19	2.69 ± 0.88	0.86 ± 0.45	0.21 ± 0.20
Rare processes	0.69 ± 0.44	0.68 ± 0.47	$0.00^{+0.20}_{-0.00}$	$0.05^{+0.12}_{-0.05}$
Total prediction	116^{+13}_{-12}	$28.4^{+5.9}_{-4.8}$	$7.9^{+3.7}_{-2.4}$	$3.2^{+2.6}_{-1.1}$
Data	101	31	7	7
$m_{\tilde{\ell}} = 450\,\text{GeV}, m_{\tilde{\chi}_1^0} = 40\,\text{GeV}$	0.73 ± 0.08	1.81 ± 0.12	2.39 ± 0.14	6.17 ± 0.23
$m_{\tilde{\ell}} = 375\,\text{GeV}, m_{\tilde{\chi}_1^0} = 160\,\text{GeV}$	2.91 ± 0.19	6.86 ± 0.29	6.06 ± 0.27	5.25 ± 0.26
$m_{\tilde{\ell}} = 250\,\text{GeV}, m_{\tilde{\chi}_1^0} = 180\,\text{GeV}$	14.04 ± 1.02	8.59 ± 0.80	0.91 ± 0.26	0.10 ± 0.10
$m_{\tilde{\ell}} = 100\,\text{GeV}, m_{\tilde{\chi}_1^0} = 1\,\text{GeV}$	159.07 ± 16.50	30.41 ± 7.26	12.95 ± 5.00	0.00 ± 0.00



CMS-SUS-17-009

LIMITS

- From the previous slide, it should be clear why the expected limits are stronger than the observed, due to the last bin.



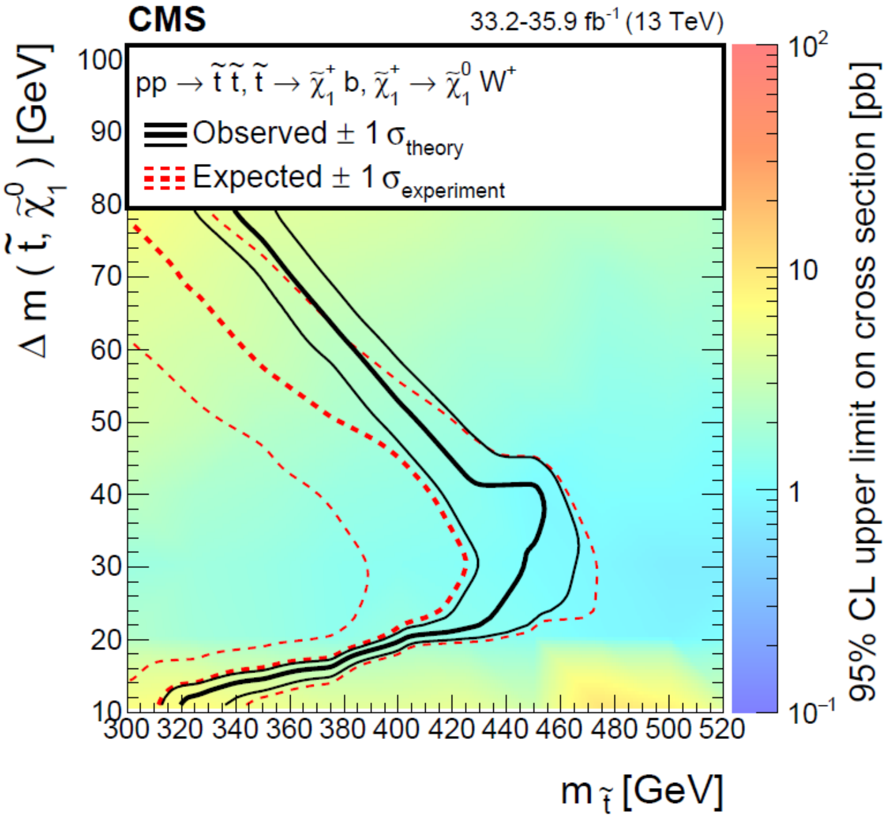
CMS-SUS-17-009

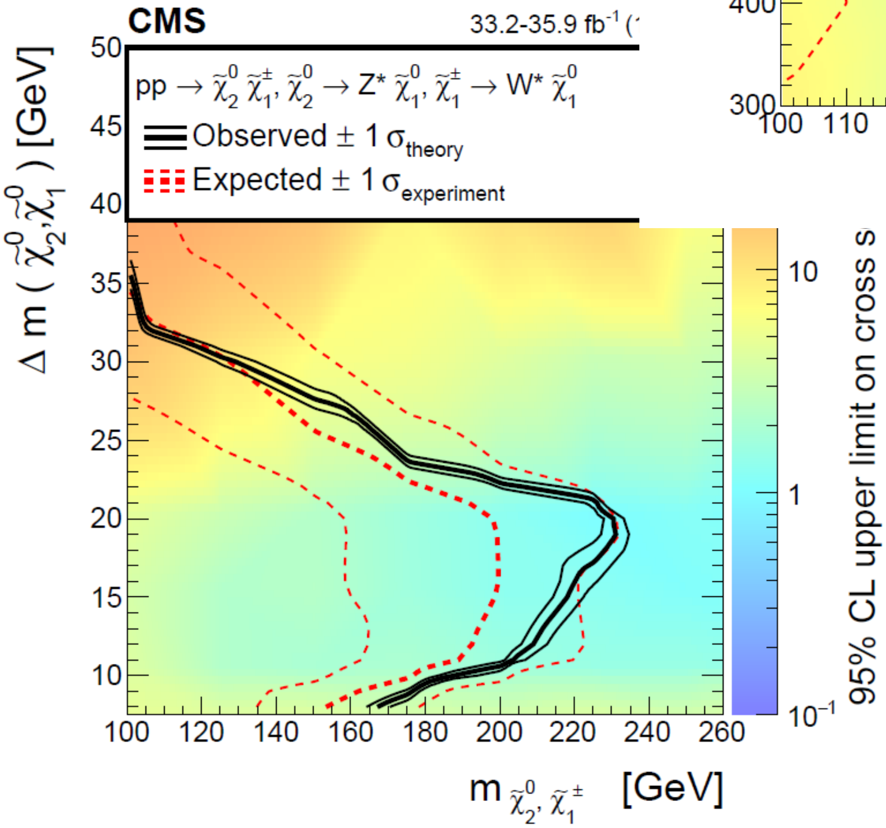
SUMMARY

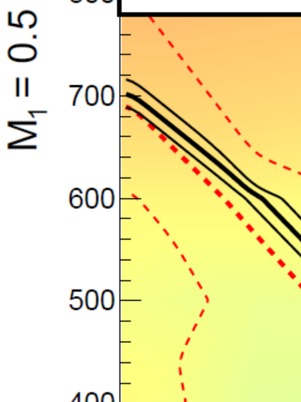
- We have done, and continue to do a very successful job widening our view into physics at the LHC.
- With Run II ending this year, we'll have our first complete 13 TeV dataset, and even that is only the tip of the iceberg.

- BACKUPS

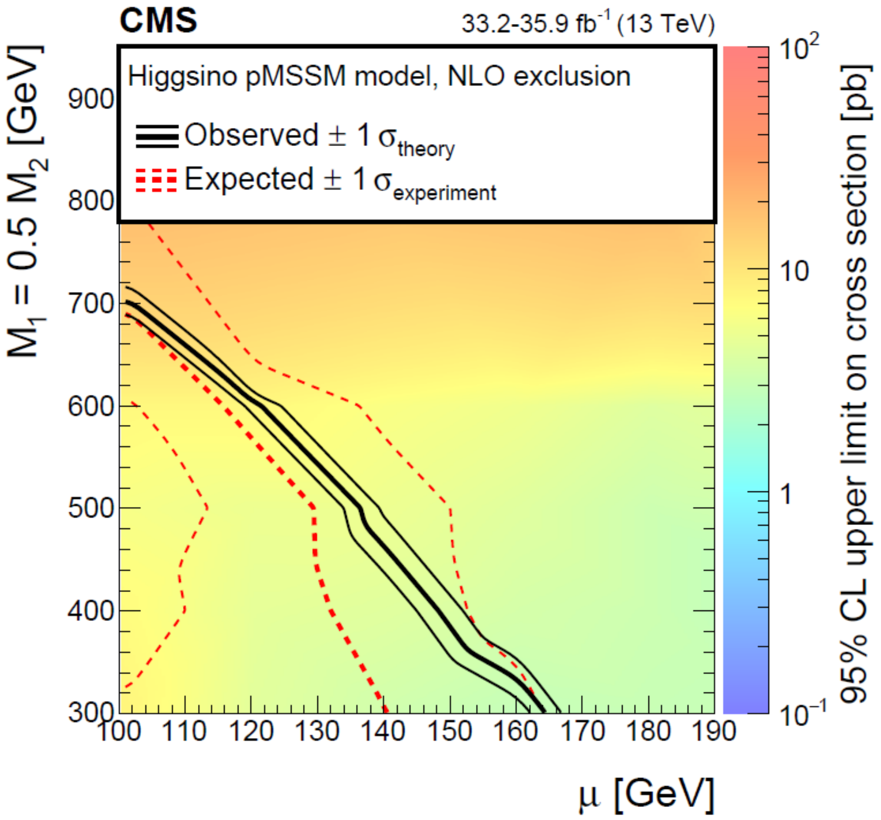
SOS ADDITIONAL LIMITS (I)



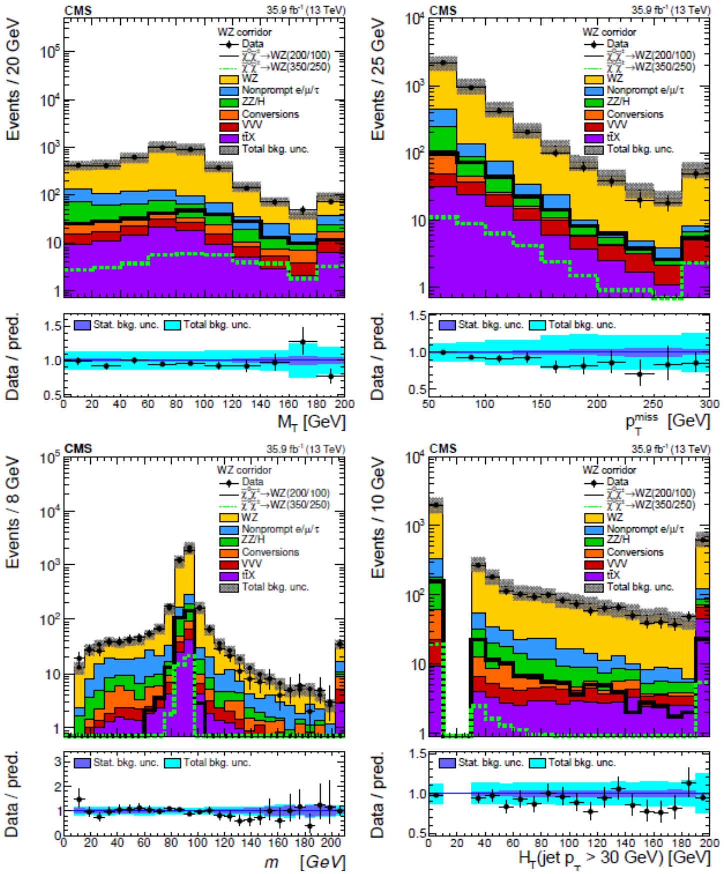




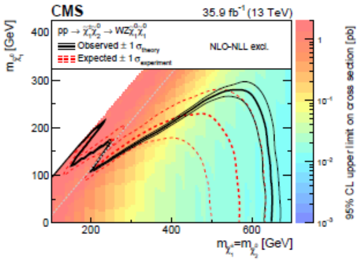
SOS ADDITIONAL LIMITS (II)

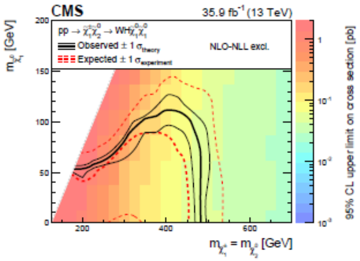


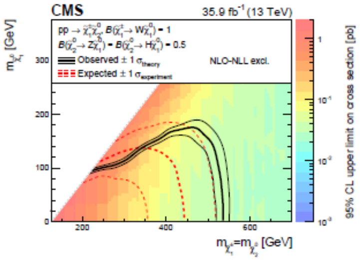
WZ CORRIDOR


CMS
35.9 fb^{-1} (13 TeV)
WZ corridor
Data
$\tilde{\chi}^0_2\tilde{\chi}^\pm_1 \to$WZ(200/100)
$\tilde{\chi}^0_2\tilde{\chi}^\pm_1 \to$WZ(350/250)
WZ
Nonprompt e/μ/τ
ZZ/H
Conversions
VVV
$t\bar{t}X$
Total bkg. unc.
Stat. bkg. unc.
Total bkg. unc.
Events / 20 GeV
Events / 25 GeV
Events / 8 GeV
Events / 10 GeV
Data / pred.
M_T [GeV]
p_T^{miss} [GeV]
m [GeV]
H_T(jet p_T > 30 GeV) [GeV]

EWK COMBINATION LIMITS

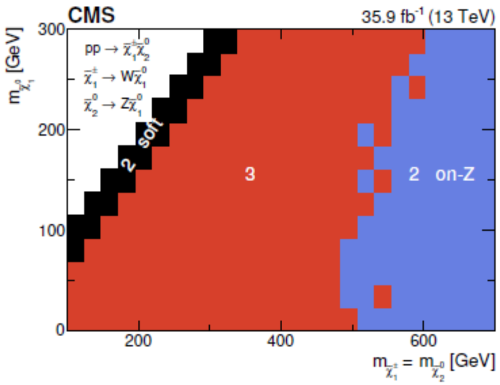


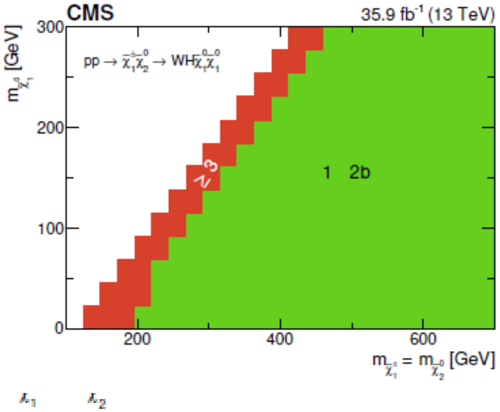




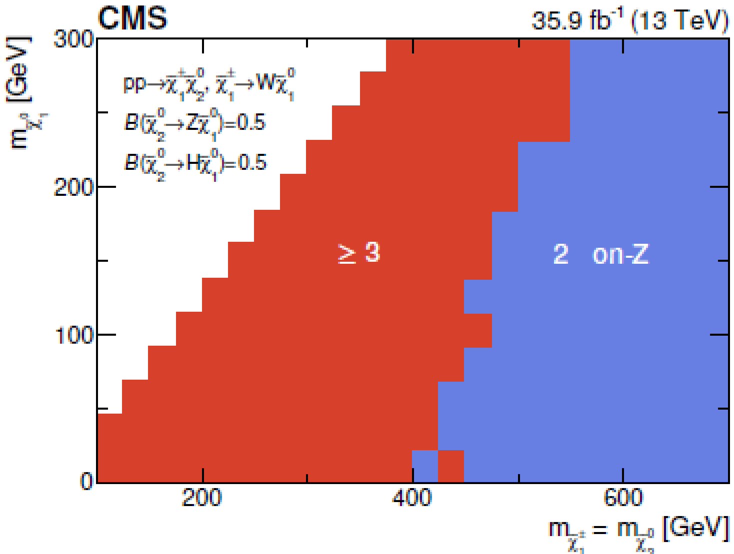
EWK EXTRA PLOTS

WZ



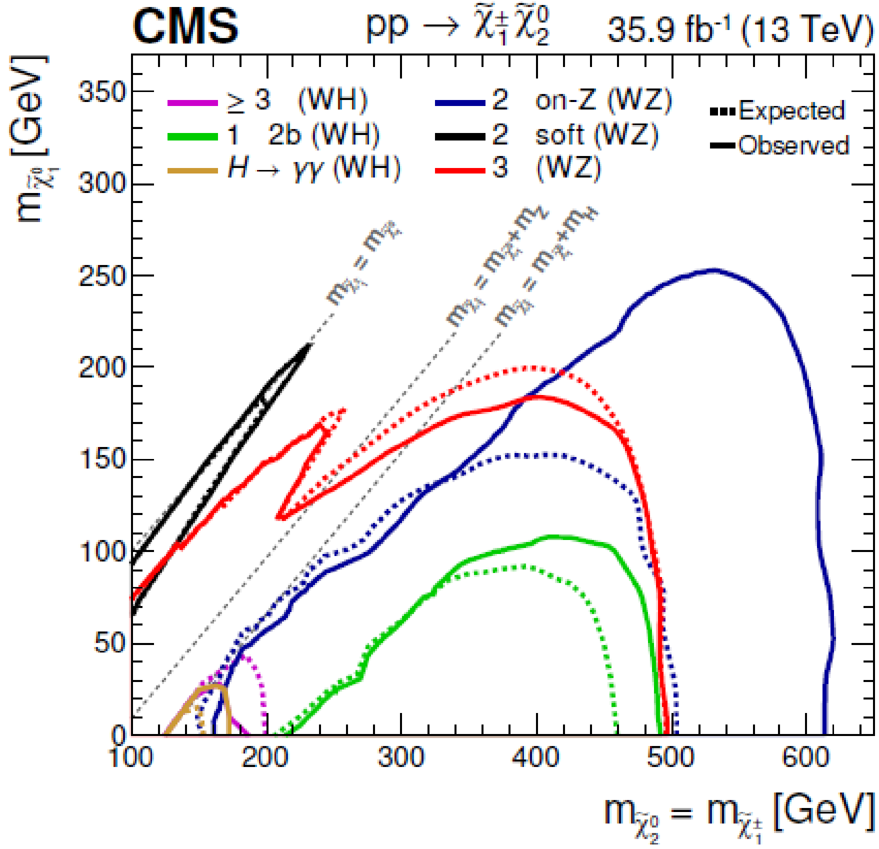


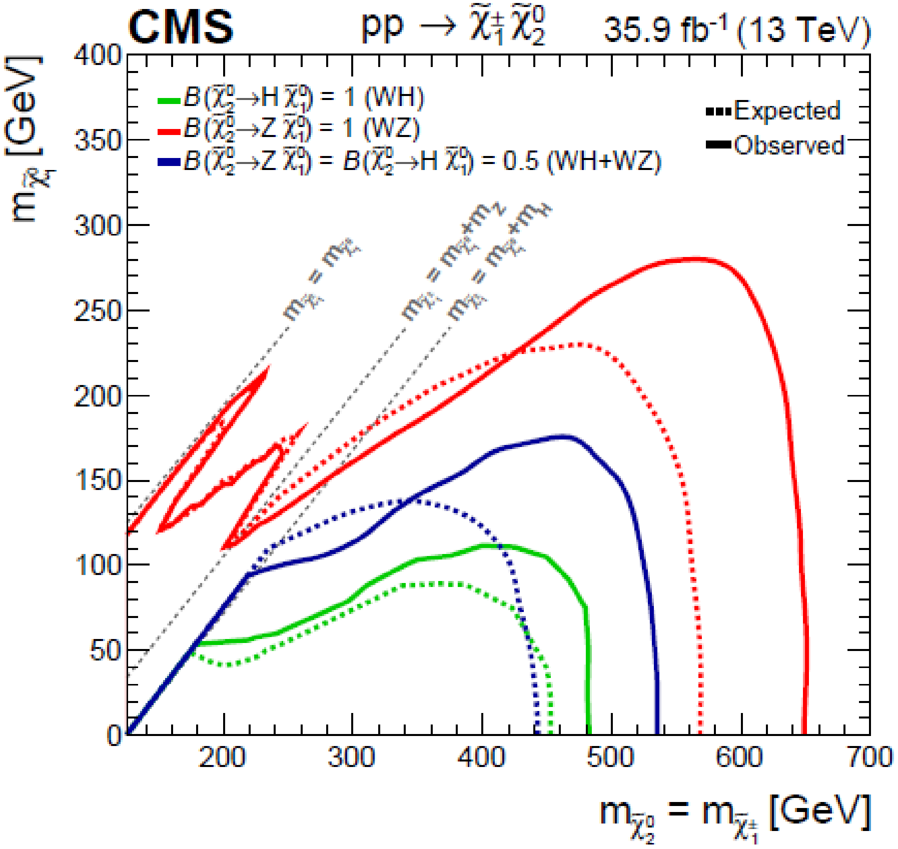
WH



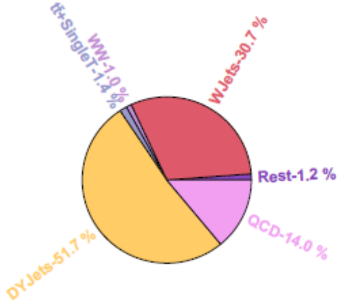
50% WZ
50% WH

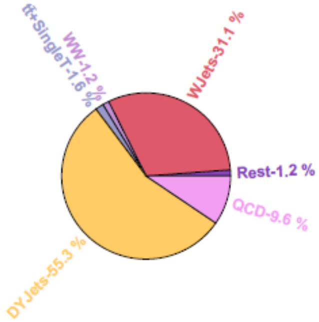
EWK EXTRA PLOTS (II)

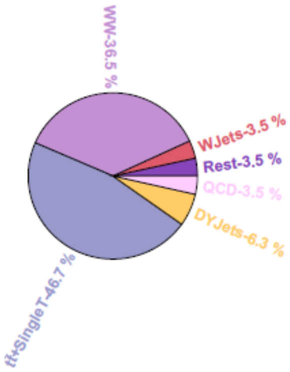




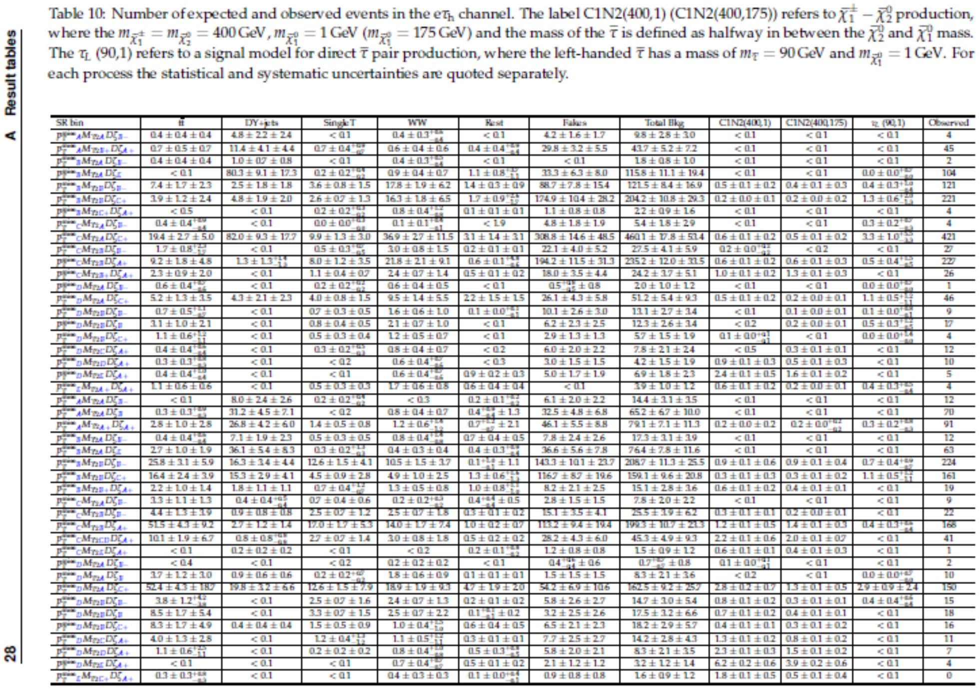
STAU BACKGROUND COMPOSITION







THIS IS JUST FUNNY (I)



A Result tables

Table 10: Number of expected and observed events in the $e\tau_h$ channel. The label C1N2(400,1) (C1N2(400,175)) refers to $\tilde{\chi}_1^{\pm} - \tilde{\chi}_2^0$ production, where the $m_{\tilde{\chi}_1^{\pm}} = m_{\tilde{\chi}_2^0} = 400\,\text{GeV}$, $m_{\tilde{\chi}_1^0} = 1\,\text{GeV}$ ($m_{\tilde{\chi}_1^0} = 175\,\text{GeV}$) and the mass of the $\tilde{\tau}$ is defined as halfway in between the $\tilde{\chi}_2^0$ and $\tilde{\chi}_1^0$ mass. The τ_L (90,1) refers to a signal model for direct $\tilde{\tau}$ pair production, where the left-handed $\tilde{\tau}$ has a mass of $m_{\tilde{\tau}} = 90\,\text{GeV}$ and $m_{\tilde{\chi}_1^0} = 1\,\text{GeV}$. For each process the statistical and systematic uncertainties are quoted separately.

SR bin	$t\bar{t}$	DY+jets	SingleT	WW	Rest	Fakes	Total Bkg	C1N2(400,1)	C1N2(400,175)	τ_L (90,1)	Observed
$p_T^{\text{sum}}{}_{A} M_{T2A} D\zeta_{B-}$	$0.4 \pm 0.4 \pm 0.4$	$4.8 \pm 2.2 \pm 2.4$	< 0.1	$0.4 \pm 0.3^{+0.6}_{-0.4}$	< 0.1	$4.2 \pm 1.6 \pm 1.7$	$9.8 \pm 2.8 \pm 3.0$	< 0.1	< 0.1	< 0.1	4
$p_T^{\text{sum}}{}_{A} M_{T2B+} D\zeta_{A+}$	$0.7 \pm 0.5 \pm 0.7$	$11.4 \pm 4.1 \pm 4.4$	$0.7 \pm 0.4^{+0.9}_{-0.7}$	$0.6 \pm 0.4 \pm 0.6$	$0.4 \pm 0.4^{+0.9}_{-0.4}$	$29.8 \pm 3.2 \pm 5.5$	$43.7 \pm 5.2 \pm 7.2$	< 0.1	< 0.1	< 0.1	45
$p_T^{\text{sum}}{}_{B} M_{T2A} D\zeta_{B-}$	$0.4 \pm 0.4 \pm 0.4$	$1.0 \pm 0.7 \pm 0.8$	< 0.1	$0.4 \pm 0.3^{+0.5}_{-0.4}$	< 0.1	< 0.1	$1.8 \pm 0.8 \pm 1.0$	< 0.1	< 0.1	< 0.1	2
$p_T^{\text{sum}}{}_{B} M_{T2A} D\zeta_{E}$	< 0.1	$80.3 \pm 9.1 \pm 17.3$	$0.2 \pm 0.2^{+0.4}_{-0.2}$	$0.9 \pm 0.4 \pm 0.7$	$1.1 \pm 0.8^{+1.7}_{-1.1}$	$33.3 \pm 6.3 \pm 8.0$	$115.8 \pm 11.1 \pm 19.4$	< 0.1	< 0.1	$0.0 \pm 0.0^{+0.7}_{-0.0}$	104
$p_T^{\text{sum}}{}_{B} M_{T2B} D\zeta_{B-}$	$7.4 \pm 1.7 \pm 2.3$	$2.5 \pm 1.8 \pm 1.8$	$3.6 \pm 0.8 \pm 1.5$	$17.8 \pm 1.9 \pm 6.2$	$1.4 \pm 0.3 \pm 0.9$	$88.7 \pm 7.8 \pm 15.4$	$121.5 \pm 8.4 \pm 16.9$	$0.5 \pm 0.1 \pm 0.2$	$0.4 \pm 0.1 \pm 0.3$	$0.4 \pm 0.3^{+1.0}_{-0.4}$	121
$p_T^{\text{sum}}{}_{B} M_{T2B} D\zeta_{C+}$	$3.9 \pm 1.2 \pm 2.4$	$4.8 \pm 1.9 \pm 2.0$	$2.6 \pm 0.7 \pm 1.3$	$16.3 \pm 1.8 \pm 6.5$	$1.7 \pm 0.9^{+2.6}_{-1.7}$	$174.9 \pm 10.4 \pm 28.2$	$204.2 \pm 10.8 \pm 29.3$	$0.2 \pm 0.0 \pm 0.1$	$0.2 \pm 0.0 \pm 0.2$	$1.3 \pm 0.6^{+2.0}_{-1.3}$	221
$p_T^{\text{sum}}{}_{B} M_{T2C+} D\zeta_{A+}$	< 0.5	< 0.1	$0.2 \pm 0.2^{+0.3}_{-0.2}$	$0.8 \pm 0.4^{+1.2}_{-0.8}$	$0.1 \pm 0.1 \pm 0.1$	$1.1 \pm 0.8 \pm 0.8$	$2.2 \pm 0.9 \pm 1.6$	< 0.1	< 0.1	< 0.1	4
$p_T^{\text{sum}}{}_{C} M_{T2A} D\zeta_{B-}$	$0.4 \pm 0.4^{+0.9}_{-0.4}$	< 0.1	$0.0 \pm 0.0^{+0.3}_{-0.0}$	$0.1 \pm 0.1^{+0.4}_{-0.1}$	< 1.9	$4.8 \pm 1.8 \pm 1.9$	$5.4 \pm 1.8 \pm 2.9$	< 0.1	< 0.1	$0.3 \pm 0.2^{+0.7}_{-0.3}$	4
$p_T^{\text{sum}}{}_{C} M_{T2A} D\zeta_{C+}$	$19.4 \pm 2.7 \pm 5.0$	$82.0 \pm 9.3 \pm 17.7$	$9.9 \pm 1.3 \pm 3.0$	$36.9 \pm 2.7 \pm 11.5$	$3.1 \pm 1.4 \pm 3.1$	$308.8 \pm 14.6 \pm 48.5$	$460.1 \pm 17.8 \pm 53.4$	$0.6 \pm 0.1 \pm 0.2$	$0.5 \pm 0.1 \pm 0.2$	$3.3 \pm 1.0^{+3.5}_{-3.3}$	421
$p_T^{\text{sum}}{}_{C} M_{T2B} D\zeta_{B-}$	$1.7 \pm 0.8^{+2.3}_{-1.7}$	< 0.1	$0.5 \pm 0.3^{+0.7}_{-0.5}$	$3.0 \pm 0.8 \pm 1.5$	$0.2 \pm 0.1 \pm 0.1$	$22.1 \pm 4.0 \pm 5.2$	$27.5 \pm 4.1 \pm 5.9$	$0.2 \pm 0.0^{+0.2}_{-0.2}$	< 0.2	< 0.1	27
$p_T^{\text{sum}}{}_{C} M_{T2B} D\zeta_{A+}$	$9.2 \pm 1.8 \pm 4.8$	$1.3 \pm 1.3^{+1.4}_{-1.3}$	$8.0 \pm 1.2 \pm 3.5$	$21.8 \pm 2.1 \pm 9.1$	$0.6 \pm 0.1^{+4.8}_{-0.6}$	$194.2 \pm 11.5 \pm 31.3$	$235.2 \pm 12.0 \pm 33.5$	$0.6 \pm 0.1 \pm 0.2$	$0.6 \pm 0.1 \pm 0.3$	$0.5 \pm 0.4^{+1.5}_{-0.5}$	227
$p_T^{\text{sum}}{}_{C} M_{T2B+} D\zeta_{A+}$	$2.3 \pm 0.9 \pm 2.0$	< 0.1	$1.1 \pm 0.4 \pm 0.7$	$2.4 \pm 0.7 \pm 1.4$	$0.5 \pm 0.1 \pm 0.2$	$18.0 \pm 3.5 \pm 4.4$	$24.2 \pm 3.7 \pm 5.1$	$1.0 \pm 0.1 \pm 0.2$	$1.3 \pm 0.1 \pm 0.3$	< 0.1	26
$p_T^{\text{sum}}{}_{D} M_{T2A} D\zeta_{B-}$	$0.6 \pm 0.4^{+0.7}_{-0.6}$	< 0.1	$0.2 \pm 0.2^{+0.2}_{-0.2}$	$0.6 \pm 0.4 \pm 0.5$	< 0.1	$0.5^{+0.8}_{-0.5} \pm 0.8$	$2.0 \pm 1.0 \pm 1.2$	< 0.1	< 0.1	$0.0 \pm 0.0^{+0.7}_{-0.0}$	1
$p_T^{\text{sum}}{}_{D} M_{T2A} D\zeta_{C+}$	$5.2 \pm 1.3 \pm 3.5$	$4.3 \pm 2.1 \pm 2.3$	$4.0 \pm 0.8 \pm 1.5$	$9.5 \pm 1.4 \pm 5.5$	$2.2 \pm 1.5 \pm 1.5$	$26.1 \pm 4.3 \pm 5.8$	$51.2 \pm 5.4 \pm 9.3$	$0.5 \pm 0.1 \pm 0.2$	$0.2 \pm 0.0 \pm 0.1$	$1.1 \pm 0.5^{+1.2}_{-1.1}$	46
$p_T^{\text{sum}}{}_{D} M_{T2B} D\zeta_{B-}$	$0.7 \pm 0.5^{+1.1}_{-0.7}$	< 0.1	$0.7 \pm 0.3 \pm 0.5$	$1.6 \pm 0.6 \pm 1.0$	$0.1 \pm 0.0^{+0.1}_{-0.1}$	$10.1 \pm 2.6 \pm 3.0$	$13.1 \pm 2.7 \pm 3.4$	< 0.1	$0.1 \pm 0.0 \pm 0.1$	$0.1 \pm 0.0^{+0.8}_{-0.1}$	9
$p_T^{\text{sum}}{}_{D} M_{T2B} D\zeta_{B}$	$3.1 \pm 1.0 \pm 2.1$	< 0.1	$0.8 \pm 0.4 \pm 0.5$	$2.1 \pm 0.7 \pm 1.0$	< 0.1	$6.2 \pm 2.3 \pm 2.5$	$12.3 \pm 2.6 \pm 3.4$	< 0.2	$0.2 \pm 0.0 \pm 0.1$	$0.5 \pm 0.3^{+1.2}_{-0.5}$	17
$p_T^{\text{sum}}{}_{D} M_{T2B} D\zeta_{C+}$	$1.1 \pm 0.6^{+1.2}_{-1.1}$	< 0.1	$0.5 \pm 0.3 \pm 0.4$	$1.2 \pm 0.5 \pm 0.7$	< 0.1	$2.9 \pm 1.3 \pm 1.3$	$5.7 \pm 1.5 \pm 1.9$	$0.1 \pm 0.0^{+0.1}_{-0.1}$	< 0.1	$0.0 \pm 0.0^{+1.4}_{-0.0}$	4
$p_T^{\text{sum}}{}_{D} M_{T2C} D\zeta_{A+}$	$0.4 \pm 0.4^{+0.6}_{-0.4}$	< 0.1	$0.3 \pm 0.2^{+0.5}_{-0.3}$	$0.8 \pm 0.4 \pm 0.7$	< 0.2	$6.0 \pm 2.0 \pm 2.2$	$7.8 \pm 2.1 \pm 2.4$	< 0.5	$0.3 \pm 0.1 \pm 0.1$	< 0.1	12
$p_T^{\text{sum}}{}_{D} M_{T2D} D\zeta_{A+}$	$0.3 \pm 0.3^{+0.8}_{-0.3}$	< 0.1	< 0.2	$0.6 \pm 0.4^{+0.7}_{-0.6}$	< 0.3	$3.0 \pm 1.5 \pm 1.5$	$4.2 \pm 1.5 \pm 1.9$	$0.9 \pm 0.1 \pm 0.3$	$0.5 \pm 0.1 \pm 0.3$	< 0.1	10
$p_T^{\text{sum}}{}_{D} M_{T2E} D\zeta_{A+}$	$0.4 \pm 0.4^{+1.0}_{-0.4}$	< 0.1	< 0.1	$0.6 \pm 0.4^{+0.7}_{-0.6}$	$0.9 \pm 0.2 \pm 0.3$	$5.0 \pm 1.7 \pm 1.9$	$6.9 \pm 1.8 \pm 2.3$	$2.4 \pm 0.1 \pm 0.5$	$1.6 \pm 0.1 \pm 0.2$	< 0.1	5
$p_T^{\text{sum}}{}_{E} M_{T2A+} D\zeta_{A+}$	$1.1 \pm 0.6 \pm 0.6$	< 0.1	$0.5 \pm 0.3 \pm 0.3$	$1.7 \pm 0.6 \pm 0.8$	$0.6 \pm 0.4 \pm 0.4$	< 0.1	$3.9 \pm 1.0 \pm 1.2$	$0.6 \pm 0.1 \pm 0.2$	$0.2 \pm 0.0 \pm 0.1$	$0.4 \pm 0.3^{+0.5}_{-0.4}$	4
$p_T^{\text{sum}}{}_{A} M_{T2A} D\zeta_{B-}$	< 0.1	$8.0 \pm 2.4 \pm 2.6$	$0.2 \pm 0.2^{+0.4}_{-0.2}$	< 0.3	$0.2 \pm 0.1^{+0.2}_{-0.2}$	$6.1 \pm 2.0 \pm 2.2$	$14.4 \pm 3.1 \pm 3.5$	< 0.1	< 0.1	< 0.1	12
$p_T^{\text{sum}}{}_{A} M_{T2A} D\zeta_{B}$	$0.3 \pm 0.3^{+0.9}_{-0.3}$	$31.2 \pm 4.5 \pm 7.1$	< 0.2	$0.8 \pm 0.4 \pm 0.7$	$0.4^{+0.9}_{-0.4} \pm 1.3$	$32.5 \pm 4.8 \pm 6.8$	$65.2 \pm 6.7 \pm 10.0$	< 0.1	< 0.1	< 0.1	70
$p_T^{\text{sum}}{}_{A} M_{T2A+} D\zeta_{A+}$	$2.8 \pm 1.0 \pm 2.8$	$26.8 \pm 4.2 \pm 6.0$	$1.4 \pm 0.5 \pm 0.8$	$1.2 \pm 0.6^{+1.4}_{-1.2}$	$0.7^{+1.2}_{-0.7} \pm 2.1$	$46.1 \pm 5.5 \pm 8.8$	$79.1 \pm 7.1 \pm 11.3$	$0.2 \pm 0.0 \pm 0.2$	$0.2 \pm 0.0^{+0.2}_{-0.2}$	$0.3 \pm 0.2^{+0.8}_{-0.3}$	91
$p_T^{\text{sum}}{}_{B} M_{T2A} D\zeta_{B-}$	$0.4 \pm 0.4^{+0.6}_{-0.4}$	$7.1 \pm 1.9 \pm 2.3$	$0.5 \pm 0.3 \pm 0.5$	$0.8 \pm 0.4^{+1.4}_{-0.8}$	$0.7 \pm 0.4 \pm 0.5$	$7.8 \pm 2.4 \pm 2.6$	$17.3 \pm 3.1 \pm 3.9$	< 0.1	< 0.1	< 0.1	12
$p_T^{\text{sum}}{}_{B} M_{T2A} D\zeta_{E}$	$2.7 \pm 1.0 \pm 1.9$	$36.1 \pm 5.4 \pm 8.3$	$0.3 \pm 0.2^{+1.3}_{-0.3}$	$0.4 \pm 0.3 \pm 0.4$	$0.4 \pm 0.3^{+0.9}_{-0.4}$	$36.6 \pm 5.6 \pm 7.8$	$76.4 \pm 7.8 \pm 11.6$	< 0.1	< 0.1	< 0.1	63
$p_T^{\text{sum}}{}_{B} M_{T2B} D\zeta_{B-}$	$25.8 \pm 3.1 \pm 5.9$	$16.3 \pm 3.4 \pm 4.4$	$12.6 \pm 1.5 \pm 4.1$	$10.5 \pm 1.5 \pm 3.7$	$0.1^{+1.0}_{-0.1} \pm 1.1$	$143.3 \pm 10.1 \pm 23.7$	$208.7 \pm 11.3 \pm 25.5$	$0.9 \pm 0.1 \pm 0.6$	$0.9 \pm 0.1 \pm 0.4$	$0.7 \pm 0.4^{+0.9}_{-0.7}$	224
$p_T^{\text{sum}}{}_{B} M_{T2B} D\zeta_{C+}$	$16.4 \pm 2.4 \pm 3.9$	$15.3 \pm 2.9 \pm 4.1$	$4.5 \pm 0.9 \pm 2.8$	$4.9 \pm 1.0 \pm 2.5$	$1.3 \pm 0.6^{+1.6}_{-1.3}$	$116.7 \pm 8.7 \pm 19.6$	$159.1 \pm 9.6 \pm 20.8$	$0.3 \pm 0.1 \pm 0.3$	$0.3 \pm 0.1 \pm 0.2$	$1.1 \pm 0.5^{+1.2}_{-1.1}$	161
$p_T^{\text{sum}}{}_{B} M_{T2B+} D\zeta_{A+}$	$2.2 \pm 1.0 \pm 1.4$	$1.8 \pm 1.1 \pm 1.1$	$0.7 \pm 0.4^{+1.2}_{-0.7}$	$1.3 \pm 0.5 \pm 0.8$	$1.0 \pm 0.8^{+1.1}_{-1.0}$	$8.2 \pm 2.1 \pm 2.5$	$15.1 \pm 2.8 \pm 3.6$	$0.6 \pm 0.1 \pm 0.2$	$0.4 \pm 0.1 \pm 0.1$	< 0.1	19
$p_T^{\text{sum}}{}_{C} M_{T2A} D\zeta_{B-}$	$3.3 \pm 1.1 \pm 1.3$	$0.4 \pm 0.4^{+0.5}_{-0.4}$	$0.7 \pm 0.4 \pm 0.6$	$0.2 \pm 0.2^{+0.3}_{-0.2}$	$0.4^{+0.4}_{-0.4} \pm 0.5$	$2.8 \pm 1.5 \pm 1.5$	$7.8 \pm 2.0 \pm 2.2$	< 0.1	< 0.1	< 0.1	9
$p_T^{\text{sum}}{}_{C} M_{T2B} D\zeta_{B-}$	$4.4 \pm 1.3 \pm 3.9$	$0.9 \pm 0.8 \pm 0.8$	$2.5 \pm 0.7 \pm 1.2$	$2.5 \pm 0.7 \pm 1.8$	$0.3 \pm 0.1 \pm 0.2$	$15.1 \pm 3.5 \pm 4.1$	$25.5 \pm 3.9 \pm 6.2$	$0.3 \pm 0.1 \pm 0.1$	$0.2 \pm 0.0 \pm 0.1$	< 0.1	22
$p_T^{\text{sum}}{}_{C} M_{T2B} D\zeta_{A+}$	$51.5 \pm 4.3 \pm 9.2$	$2.7 \pm 1.2 \pm 1.4$	$17.0 \pm 1.7 \pm 5.3$	$14.0 \pm 1.7 \pm 7.4$	$1.0 \pm 0.2 \pm 0.7$	$113.2 \pm 9.4 \pm 19.4$	$199.3 \pm 10.7 \pm 23.3$	$1.2 \pm 0.1 \pm 0.5$	$1.4 \pm 0.1 \pm 0.3$	$0.4 \pm 0.3^{+0.6}_{-0.4}$	168
$p_T^{\text{sum}}{}_{C} M_{T2CD} D\zeta_{A+}$	$10.1 \pm 1.9 \pm 6.7$	$0.8 \pm 0.8^{+0.8}_{-0.8}$	$2.7 \pm 0.7 \pm 1.4$	$3.0 \pm 0.8 \pm 1.8$	$0.5 \pm 0.2 \pm 0.2$	$28.2 \pm 4.3 \pm 6.0$	$45.3 \pm 4.9 \pm 9.3$	$2.2 \pm 0.1 \pm 0.6$	$2.0 \pm 0.1 \pm 0.7$	< 0.1	41
$p_T^{\text{sum}}{}_{C} M_{T2E} D\zeta_{A+}$	< 0.1	$0.2 \pm 0.2 \pm 0.2$	< 0.1	< 0.2	$0.2 \pm 0.1^{+0.8}_{-0.2}$	$1.2 \pm 0.8 \pm 0.8$	$1.5 \pm 0.9 \pm 1.2$	$0.6 \pm 0.1 \pm 0.1$	$0.4 \pm 0.1 \pm 0.3$	< 0.1	1
$p_T^{\text{sum}}{}_{D} M_{T2A} D\zeta_{B-}$	< 0.4	< 0.1	< 0.2	$0.2 \pm 0.2 \pm 0.2$	< 0.1	$0.4^{+0.6}_{-0.4} \pm 0.6$	$0.7^{+0.7}_{-0.7} \pm 0.8$	$0.1 \pm 0.0^{+0.1}_{-0.1}$	< 0.1	< 0.1	2
$p_T^{\text{sum}}{}_{D} M_{T2A} D\zeta_{E}$	$3.7 \pm 1.2 \pm 3.0$	$0.9 \pm 0.6 \pm 0.6$	$0.2 \pm 0.2^{+0.7}_{-0.2}$	$1.8 \pm 0.6 \pm 0.9$	$0.1 \pm 0.1 \pm 0.1$	$1.5 \pm 1.5 \pm 1.5$	$8.3 \pm 2.1 \pm 3.6$	< 0.2	< 0.1	$0.0 \pm 0.0^{+0.7}_{-0.0}$	10
$p_T^{\text{sum}}{}_{D} M_{T2A} D\zeta_{C+}$	$52.4 \pm 4.3 \pm 18.7$	$19.8 \pm 3.2 \pm 6.6$	$12.6 \pm 1.5 \pm 7.9$	$18.9 \pm 1.9 \pm 9.3$	$4.7 \pm 1.9 \pm 2.0$	$54.2 \pm 6.9 \pm 10.6$	$162.5 \pm 9.2 \pm 25.7$	$2.8 \pm 0.2 \pm 0.7$	$1.3 \pm 0.1 \pm 0.5$	$2.9 \pm 0.9 \pm 2.4$	150
$p_T^{\text{sum}}{}_{D} M_{T2B} D\zeta_{B-}$	$3.8 \pm 1.2^{+4.2}_{-3.8}$	< 0.1	$2.5 \pm 0.7 \pm 1.6$	$2.4 \pm 0.7 \pm 1.3$	$0.2 \pm 0.1 \pm 0.2$	$5.8 \pm 2.6 \pm 2.7$	$14.7 \pm 3.0 \pm 5.4$	$0.8 \pm 0.1 \pm 0.2$	$0.3 \pm 0.1 \pm 0.1$	$0.4 \pm 0.4^{+0.6}_{-0.4}$	15
$p_T^{\text{sum}}{}_{D} M_{T2B} D\zeta_{B}$	$8.5 \pm 1.7 \pm 5.4$	< 0.1	$3.3 \pm 0.7 \pm 1.5$	$2.5 \pm 0.7 \pm 2.2$	$0.1^{+0.1}_{-0.1} \pm 0.2$	$3.2 \pm 2.5 \pm 2.6$	$17.5 \pm 3.2 \pm 6.6$	$0.7 \pm 0.1 \pm 0.2$	$0.4 \pm 0.1 \pm 0.1$	< 0.1	18
$p_T^{\text{sum}}{}_{D} M_{T2B} D\zeta_{C+}$	$8.3 \pm 1.7 \pm 4.9$	$0.4 \pm 0.4 \pm 0.4$	$1.5 \pm 0.5 \pm 0.9$	$1.0 \pm 0.4^{+1.5}_{-1.0}$	$0.6 \pm 0.4 \pm 0.5$	$6.5 \pm 2.1 \pm 2.3$	$18.2 \pm 2.9 \pm 5.7$	$0.4 \pm 0.1 \pm 0.1$	$0.3 \pm 0.1 \pm 0.2$	< 0.1	16
$p_T^{\text{sum}}{}_{D} M_{T2C} D\zeta_{A+}$	$4.0 \pm 1.3 \pm 2.8$	< 0.1	$1.2 \pm 0.4^{+1.3}_{-1.2}$	$1.1 \pm 0.5^{+1.2}_{-1.1}$	$0.3 \pm 0.1 \pm 0.1$	$7.7 \pm 2.5 \pm 2.7$	$14.2 \pm 2.8 \pm 4.3$	$1.3 \pm 0.1 \pm 0.2$	$0.8 \pm 0.1 \pm 0.2$	< 0.1	11
$p_T^{\text{sum}}{}_{D} M_{T2D} D\zeta_{A+}$	$1.1 \pm 0.6^{+2.5}_{-1.1}$	< 0.1	$0.2 \pm 0.2 \pm 0.2$	$0.8 \pm 0.4^{+1.0}_{-0.8}$	$0.5 \pm 0.3^{+0.8}_{-0.5}$	$5.8 \pm 2.0 \pm 2.1$	$8.3 \pm 2.1 \pm 3.5$	$2.3 \pm 0.1 \pm 0.3$	$1.5 \pm 0.1 \pm 0.2$	< 0.1	7
$p_T^{\text{sum}}{}_{D} M_{T2E} D\zeta_{A+}$	< 0.1	< 0.1	< 0.1	$0.7 \pm 0.4^{+0.7}_{-0.7}$	$0.5 \pm 0.1 \pm 0.2$	$2.1 \pm 1.2 \pm 1.2$	$3.2 \pm 1.2 \pm 1.4$	$6.2 \pm 0.2 \pm 0.6$	$3.9 \pm 0.2 \pm 0.6$	< 0.1	4
$p_T^{\text{sum}}{}_{E} M_{T2C+} D\zeta_{A+}$	$0.3 \pm 0.3^{+0.8}_{-0.3}$	< 0.1	< 0.1	$0.4 \pm 0.3 \pm 0.3$	$0.1 \pm 0.0^{+0.4}_{-0.1}$	$0.9 \pm 0.8 \pm 0.8$	$1.6 \pm 0.9 \pm 1.2$	$1.8 \pm 0.1 \pm 0.5$	$0.5 \pm 0.1 \pm 0.4$	< 0.1	0

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THIS IS JUST FUNNY (II)

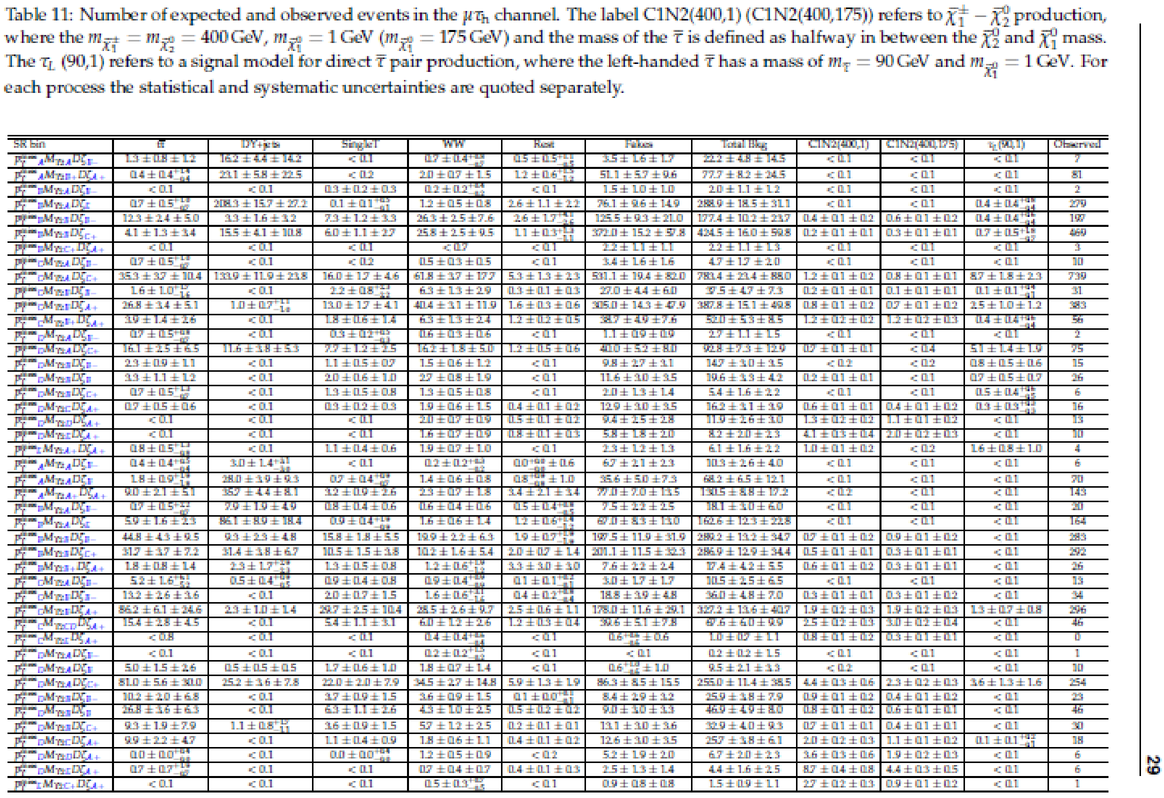

Table 11: Number of expected and observed events in the $\mu\tau_h$ channel. The label C1N2(400,1) (C1N2(400,175)) refers to $\tilde{\chi}_1^{\pm}-\tilde{\chi}_2^0$ production, where the $m_{\tilde{\chi}_1^{\pm}} = m_{\tilde{\chi}_2^0} = 400\,\text{GeV}$, $m_{\tilde{\chi}_1^0} = 1\,\text{GeV}$ ($m_{\tilde{\chi}_1^0} = 175\,\text{GeV}$) and the mass of the $\tilde{\tau}$ is defined as halfway in between the $\tilde{\chi}_2^0$ and $\tilde{\chi}_1^0$ mass. The $\tilde{\tau}_L$ (90,1) refers to a signal model for direct $\tilde{\tau}$ pair production, where the left-handed $\tilde{\tau}$ has a mass of $m_{\tilde{\tau}} = 90\,\text{GeV}$ and $m_{\tilde{\chi}_1^0} = 1\,\text{GeV}$. For each process the statistical and systematic uncertainties are quoted separately.

SR bin	$t\bar{t}$	DY+jets	SingleT	WW	Rest	Fakes	Total Bkg	C1N2(400,1)	C1N2(400,175)	$\tilde{\tau}_L$(90,1)	Observed
$p_T^{miss}{}_A M_{T2A} D\zeta_{B-}$	$1.3 \pm 0.8 \pm 1.2$	$16.2 \pm 4.4 \pm 14.2$	< 0.1	$0.7 \pm 0.4^{+0.8}_{-0.7}$	$0.5 \pm 0.5^{+1.1}_{-0.5}$	$3.5 \pm 1.6 \pm 1.7$	$22.2 \pm 4.8 \pm 14.5$	< 0.1	< 0.1	< 0.1	7
$p_T^{miss}{}_A M_{T2B+} D\zeta_{A+}$	$0.4 \pm 0.4^{+1.4}_{-0.4}$	$23.1 \pm 5.8 \pm 22.5$	< 0.2	$2.0 \pm 0.7 \pm 1.5$	$1.2 \pm 0.6^{+1.5}_{-1.2}$	$51.1 \pm 5.7 \pm 9.6$	$77.7 \pm 8.2 \pm 24.5$	< 0.1	< 0.1	< 0.1	81
$p_T^{miss}{}_B M_{T2A} D\zeta_{B-}$	< 0.1	< 0.1	$0.3 \pm 0.2 \pm 0.3$	$0.2 \pm 0.2^{+0.4}_{-0.2}$	< 0.1	$1.5 \pm 1.0 \pm 1.0$	$2.0 \pm 1.1 \pm 1.2$	< 0.1	< 0.1	< 0.1	2
$p_T^{miss}{}_B M_{T2A} D\zeta_{B}$	$0.7 \pm 0.5^{+1.0}_{-0.7}$	$208.3 \pm 15.7 \pm 27.2$	$0.1 \pm 0.1^{+0.3}_{-0.1}$	$1.2 \pm 0.5 \pm 0.8$	$2.6 \pm 1.1 \pm 2.2$	$76.1 \pm 9.6 \pm 14.9$	$288.9 \pm 18.5 \pm 31.1$	< 0.1	< 0.1	$0.4 \pm 0.4^{+0.8}_{-0.4}$	279
$p_T^{miss}{}_B M_{T2B} D\zeta_{B-}$	$12.3 \pm 2.4 \pm 5.0$	$3.3 \pm 1.6 \pm 3.2$	$7.3 \pm 1.2 \pm 3.3$	$26.3 \pm 2.5 \pm 7.6$	$2.6 \pm 1.7^{+4.1}_{-2.6}$	$125.5 \pm 9.3 \pm 21.0$	$177.4 \pm 10.2 \pm 23.7$	$0.4 \pm 0.1 \pm 0.2$	$0.6 \pm 0.1 \pm 0.2$	$0.4 \pm 0.4^{+0.6}_{-0.4}$	197
$p_T^{miss}{}_B M_{T2B} D\zeta_{C+}$	$4.1 \pm 1.3 \pm 3.4$	$15.5 \pm 4.1 \pm 10.8$	$6.0 \pm 1.1 \pm 2.7$	$25.8 \pm 2.5 \pm 9.5$	$1.1 \pm 0.3^{+1.3}_{-1.1}$	$372.0 \pm 15.2 \pm 57.8$	$424.5 \pm 16.0 \pm 59.8$	$0.2 \pm 0.1 \pm 0.1$	$0.3 \pm 0.1 \pm 0.1$	$0.7 \pm 0.5^{+1.8}_{-0.7}$	469
$p_T^{miss}{}_B M_{T2C+} D\zeta_{A+}$	< 0.1	< 0.1	< 0.1	< 0.7	< 0.1	$2.2 \pm 1.1 \pm 1.1$	$2.2 \pm 1.1 \pm 1.3$	< 0.1	< 0.1	< 0.1	3
$p_T^{miss}{}_C M_{T2A} D\zeta_{B-}$	$0.7 \pm 0.5^{+1.0}_{-0.7}$	< 0.1	< 0.2	$0.5 \pm 0.3 \pm 0.5$	< 0.1	$3.4 \pm 1.6 \pm 1.6$	$4.7 \pm 1.7 \pm 2.0$	< 0.1	< 0.1	< 0.1	10
$p_T^{miss}{}_C M_{T2A} D\zeta_{C+}$	$35.3 \pm 3.7 \pm 10.4$	$133.9 \pm 11.9 \pm 23.8$	$16.0 \pm 1.7 \pm 4.6$	$61.8 \pm 3.7 \pm 17.7$	$5.3 \pm 1.3 \pm 2.3$	$531.1 \pm 19.4 \pm 82.0$	$783.4 \pm 23.4 \pm 88.0$	$1.2 \pm 0.1 \pm 0.2$	$0.8 \pm 0.1 \pm 0.1$	$8.7 \pm 1.8 \pm 2.3$	739
$p_T^{miss}{}_C M_{T2B} D\zeta_{B-}$	$1.6 \pm 1.0^{+1.5}_{-1.6}$	< 0.1	$2.2 \pm 0.8^{+2.3}_{-2.2}$	$6.3 \pm 1.3 \pm 2.9$	$0.3 \pm 0.1 \pm 0.3$	$27.0 \pm 4.4 \pm 6.0$	$37.5 \pm 4.7 \pm 7.3$	$0.2 \pm 0.1 \pm 0.1$	$0.1 \pm 0.1 \pm 0.1$	$0.1 \pm 0.1^{+0.4}_{-0.1}$	31
$p_T^{miss}{}_C M_{T2B} D\zeta_{A+}$	$26.8 \pm 3.4 \pm 5.1$	$1.0 \pm 0.7^{+1.1}_{-1.0}$	$13.0 \pm 1.7 \pm 4.1$	$40.4 \pm 3.1 \pm 11.9$	$1.6 \pm 0.3 \pm 0.6$	$305.0 \pm 14.3 \pm 47.9$	$387.8 \pm 15.1 \pm 49.8$	$0.8 \pm 0.1 \pm 0.2$	$0.7 \pm 0.1 \pm 0.2$	$2.5 \pm 1.0 \pm 1.2$	383
$p_T^{miss}{}_C M_{T2B+} D\zeta_{A+}$	$3.9 \pm 1.4 \pm 2.6$	< 0.1	$1.8 \pm 0.6 \pm 1.4$	$6.3 \pm 1.3 \pm 2.4$	$1.2 \pm 0.2 \pm 0.5$	$38.7 \pm 4.9 \pm 7.6$	$52.0 \pm 5.3 \pm 8.5$	$1.2 \pm 0.2 \pm 0.2$	$1.2 \pm 0.2 \pm 0.3$	$0.4 \pm 0.4^{+0.6}_{-0.4}$	56
$p_T^{miss}{}_D M_{T2A} D\zeta_{B-}$	$0.7 \pm 0.5^{+0.8}_{-0.7}$	< 0.1	$0.3 \pm 0.2^{+0.3}_{-0.3}$	$0.6 \pm 0.3 \pm 0.6$	< 0.1	$1.1 \pm 0.9 \pm 0.9$	$2.7 \pm 1.1 \pm 1.5$	< 0.1	< 0.1	< 0.1	2
$p_T^{miss}{}_D M_{T2A} D\zeta_{C+}$	$16.1 \pm 2.5 \pm 6.5$	$11.6 \pm 3.8 \pm 5.3$	$7.7 \pm 1.2 \pm 2.5$	$16.2 \pm 1.8 \pm 5.0$	$1.2 \pm 0.5 \pm 0.6$	$40.0 \pm 5.2 \pm 8.0$	$92.8 \pm 7.3 \pm 12.9$	$0.7 \pm 0.1 \pm 0.1$	< 0.4	$5.1 \pm 1.4 \pm 1.9$	75
$p_T^{miss}{}_D M_{T2B} D\zeta_{B-}$	$2.3 \pm 0.9 \pm 1.1$	< 0.1	$1.1 \pm 0.5 \pm 0.7$	$1.5 \pm 0.6 \pm 1.2$	< 0.1	$9.8 \pm 2.7 \pm 3.1$	$14.7 \pm 3.0 \pm 3.5$	< 0.2	< 0.2	$0.8 \pm 0.5 \pm 0.6$	15
$p_T^{miss}{}_D M_{T2B} D\zeta_{B}$	$3.3 \pm 1.1 \pm 1.2$	< 0.1	$2.0 \pm 0.6 \pm 1.0$	$2.7 \pm 0.8 \pm 1.9$	< 0.1	$11.6 \pm 3.0 \pm 3.5$	$19.6 \pm 3.3 \pm 4.2$	$0.2 \pm 0.1 \pm 0.1$	< 0.1	$0.7 \pm 0.5 \pm 0.7$	26
$p_T^{miss}{}_D M_{T2B} D\zeta_{C+}$	$0.7 \pm 0.5^{+1.3}_{-0.7}$	< 0.1	$1.3 \pm 0.5 \pm 0.8$	$1.3 \pm 0.5 \pm 0.8$	< 0.1	$2.0 \pm 1.3 \pm 1.4$	$5.4 \pm 1.6 \pm 2.2$	< 0.1	< 0.1	$0.5 \pm 0.4^{+0.8}_{-0.5}$	6
$p_T^{miss}{}_D M_{T2C} D\zeta_{A+}$	$0.7 \pm 0.5 \pm 0.6$	< 0.1	$0.3 \pm 0.2 \pm 0.3$	$1.9 \pm 0.6 \pm 1.5$	$0.4 \pm 0.1 \pm 0.2$	$12.9 \pm 3.0 \pm 3.5$	$16.2 \pm 3.1 \pm 3.9$	$0.6 \pm 0.1 \pm 0.1$	$0.4 \pm 0.1 \pm 0.2$	$0.3 \pm 0.3^{+0.3}_{-0.3}$	16
$p_T^{miss}{}_D M_{T2D} D\zeta_{A+}$	< 0.1	< 0.1	< 0.1	$2.0 \pm 0.7 \pm 0.9$	$0.5 \pm 0.1 \pm 0.2$	$9.4 \pm 2.5 \pm 2.8$	$11.9 \pm 2.6 \pm 3.0$	$1.3 \pm 0.2 \pm 0.2$	$1.1 \pm 0.1 \pm 0.2$	< 0.1	13
$p_T^{miss}{}_D M_{T2E} D\zeta_{A+}$	< 0.1	< 0.1	< 0.1	$1.6 \pm 0.7 \pm 0.9$	$0.8 \pm 0.1 \pm 0.3$	$5.8 \pm 1.8 \pm 2.0$	$8.2 \pm 2.0 \pm 2.3$	$4.1 \pm 0.3 \pm 0.4$	$2.0 \pm 0.2 \pm 0.3$	< 0.1	10
$p_T^{miss}{}_E M_{T2A+} D\zeta_{A+}$	$0.8 \pm 0.5^{+1.3}_{-0.8}$	< 0.1	$1.1 \pm 0.4 \pm 0.6$	$1.9 \pm 0.7 \pm 1.0$	< 0.1	$2.3 \pm 1.2 \pm 1.3$	$6.1 \pm 1.6 \pm 2.2$	$1.0 \pm 0.1 \pm 0.2$	< 0.2	$1.6 \pm 0.8 \pm 1.0$	4
$p_T^{miss}{}_A M_{T2A} D\zeta_{B-}$	$0.4 \pm 0.4^{+0.5}_{-0.4}$	$3.0 \pm 1.4^{+3.1}_{-3.0}$	< 0.1	$0.2 \pm 0.2^{+0.2}_{-0.2}$	$0.0^{+0.8}_{-0.0} \pm 0.6$	$6.7 \pm 2.1 \pm 2.3$	$10.3 \pm 2.6 \pm 4.0$	< 0.1	< 0.1	< 0.1	6
$p_T^{miss}{}_A M_{T2A} D\zeta_{B}$	$1.8 \pm 0.9^{+1.8}_{-1.8}$	$28.0 \pm 3.9 \pm 9.3$	$0.7 \pm 0.4^{+0.9}_{-0.7}$	$1.4 \pm 0.6 \pm 0.8$	$0.8^{+0.8}_{-0.8} \pm 1.0$	$35.6 \pm 5.0 \pm 7.3$	$68.2 \pm 6.5 \pm 12.1$	< 0.1	< 0.1	< 0.1	70
$p_T^{miss}{}_A M_{T2A+} D\zeta_{A+}$	$9.0 \pm 2.1 \pm 5.1$	$35.7 \pm 4.4 \pm 8.1$	$3.2 \pm 0.9 \pm 2.6$	$2.3 \pm 0.7 \pm 1.8$	$3.4 \pm 2.1 \pm 3.4$	$77.0 \pm 7.0 \pm 13.5$	$130.5 \pm 8.8 \pm 17.2$	< 0.2	< 0.1	< 0.1	143
$p_T^{miss}{}_B M_{T2A} D\zeta_{B-}$	$0.7 \pm 0.5^{+2.2}_{-0.7}$	$7.9 \pm 1.9 \pm 4.9$	$0.8 \pm 0.4 \pm 0.6$	$0.6 \pm 0.4 \pm 0.6$	$0.5 \pm 0.4^{+0.9}_{-0.5}$	$7.5 \pm 2.2 \pm 2.5$	$18.1 \pm 3.0 \pm 6.0$	< 0.1	< 0.1	< 0.1	20
$p_T^{miss}{}_B M_{T2A} D\zeta_{B}$	$5.9 \pm 1.6 \pm 2.3$	$86.1 \pm 8.9 \pm 18.4$	$0.9 \pm 0.4^{+1.9}_{-0.9}$	$1.6 \pm 0.6 \pm 1.4$	$1.2 \pm 0.6^{+1.4}_{-1.2}$	$67.0 \pm 8.3 \pm 13.0$	$162.6 \pm 12.3 \pm 22.8$	< 0.1	< 0.1	< 0.1	164
$p_T^{miss}{}_B M_{T2B} D\zeta_{B-}$	$44.8 \pm 4.3 \pm 9.5$	$9.3 \pm 2.3 \pm 4.8$	$15.8 \pm 1.8 \pm 5.5$	$19.9 \pm 2.2 \pm 6.3$	$1.9 \pm 0.7^{+1.9}_{-1.9}$	$197.5 \pm 11.9 \pm 31.9$	$289.2 \pm 13.2 \pm 34.7$	$0.7 \pm 0.1 \pm 0.2$	$0.9 \pm 0.1 \pm 0.2$	< 0.1	283
$p_T^{miss}{}_B M_{T2B} D\zeta_{C+}$	$31.7 \pm 3.7 \pm 7.2$	$31.4 \pm 3.8 \pm 6.7$	$10.5 \pm 1.5 \pm 3.8$	$10.2 \pm 1.6 \pm 5.4$	$2.0 \pm 0.7 \pm 1.4$	$201.1 \pm 11.5 \pm 32.3$	$286.9 \pm 12.9 \pm 34.4$	$0.5 \pm 0.1 \pm 0.1$	$0.3 \pm 0.1 \pm 0.1$	< 0.1	292
$p_T^{miss}{}_B M_{T2B+} D\zeta_{A+}$	$1.8 \pm 0.8 \pm 1.4$	$2.3 \pm 1.7^{+2.9}_{-2.3}$	$1.3 \pm 0.5 \pm 0.8$	$1.2 \pm 0.6^{+1.9}_{-1.2}$	$3.3 \pm 3.0 \pm 3.0$	$7.6 \pm 2.2 \pm 2.4$	$17.4 \pm 4.2 \pm 5.5$	$0.6 \pm 0.1 \pm 0.2$	$0.3 \pm 0.1 \pm 0.1$	< 0.1	26
$p_T^{miss}{}_C M_{T2A} D\zeta_{B-}$	$5.2 \pm 1.6^{+5.1}_{-5.2}$	$0.5 \pm 0.4^{+0.8}_{-0.5}$	$0.9 \pm 0.4 \pm 0.8$	$0.9 \pm 0.4^{+0.9}_{-0.9}$	$0.1 \pm 0.1^{+0.2}_{-0.1}$	$3.0 \pm 1.7 \pm 1.7$	$10.5 \pm 2.5 \pm 6.5$	< 0.1	< 0.1	< 0.1	13
$p_T^{miss}{}_C M_{T2B} D\zeta_{B-}$	$13.2 \pm 2.6 \pm 3.6$	< 0.1	$2.0 \pm 0.7 \pm 1.5$	$1.6 \pm 0.6^{+2.1}_{-1.6}$	$0.4 \pm 0.2^{+0.8}_{-0.4}$	$18.8 \pm 3.9 \pm 4.8$	$36.0 \pm 4.8 \pm 7.0$	$0.3 \pm 0.1 \pm 0.1$	$0.3 \pm 0.1 \pm 0.2$	< 0.1	34
$p_T^{miss}{}_C M_{T2B} D\zeta_{A+}$	$86.2 \pm 6.1 \pm 24.6$	$2.3 \pm 1.0 \pm 1.4$	$29.7 \pm 2.5 \pm 10.4$	$28.5 \pm 2.6 \pm 9.7$	$2.5 \pm 0.6 \pm 1.1$	$178.0 \pm 11.6 \pm 29.1$	$327.2 \pm 13.6 \pm 40.7$	$1.9 \pm 0.2 \pm 0.3$	$1.9 \pm 0.2 \pm 0.3$	$1.3 \pm 0.7 \pm 0.8$	296
$p_T^{miss}{}_C M_{T2CD} D\zeta_{A+}$	$15.4 \pm 2.8 \pm 4.5$	< 0.1	$5.4 \pm 1.1 \pm 3.1$	$6.0 \pm 1.2 \pm 2.6$	$1.2 \pm 0.3 \pm 0.4$	$39.6 \pm 5.1 \pm 7.8$	$67.6 \pm 6.0 \pm 9.9$	$2.5 \pm 0.2 \pm 0.3$	$3.0 \pm 0.2 \pm 0.4$	< 0.1	46
$p_T^{miss}{}_C M_{T2E} D\zeta_{A+}$	< 0.8	< 0.1	< 0.1	$0.4 \pm 0.4^{+0.6}_{-0.4}$	< 0.1	$0.6^{+0.6}_{-0.6} \pm 0.6$	$1.0 \pm 0.7 \pm 1.1$	$0.8 \pm 0.1 \pm 0.2$	$0.3 \pm 0.1 \pm 0.1$	< 0.1	0
$p_T^{miss}{}_D M_{T2A} D\zeta_{B-}$	< 0.1	< 0.1	< 0.1	$0.2 \pm 0.2^{+1.5}_{-0.2}$	< 0.1	< 0.1	$0.2 \pm 0.2 \pm 1.5$	< 0.1	< 0.1	< 0.1	1
$p_T^{miss}{}_D M_{T2A} D\zeta_{B}$	$5.0 \pm 1.5 \pm 2.6$	$0.5 \pm 0.5 \pm 0.5$	$1.7 \pm 0.6 \pm 1.0$	$1.8 \pm 0.7 \pm 1.4$	< 0.1	$0.6^{+1.0}_{-0.6} \pm 1.0$	$9.5 \pm 2.1 \pm 3.3$	< 0.2	< 0.1	< 0.1	10
$p_T^{miss}{}_D M_{T2A} D\zeta_{C+}$	$81.0 \pm 5.6 \pm 30.0$	$25.2 \pm 3.6 \pm 7.8$	$22.0 \pm 2.0 \pm 7.9$	$34.5 \pm 2.7 \pm 14.8$	$5.9 \pm 1.3 \pm 1.9$	$86.3 \pm 8.5 \pm 15.5$	$255.0 \pm 11.4 \pm 38.5$	$4.4 \pm 0.3 \pm 0.6$	$2.3 \pm 0.2 \pm 0.3$	$3.6 \pm 1.3 \pm 1.6$	254
$p_T^{miss}{}_D M_{T2B} D\zeta_{B-}$	$10.2 \pm 2.0 \pm 6.8$	< 0.1	$3.7 \pm 0.9 \pm 1.5$	$3.6 \pm 0.9 \pm 1.5$	$0.1 \pm 0.0^{+0.1}_{-0.1}$	$8.4 \pm 2.9 \pm 3.2$	$25.9 \pm 3.8 \pm 7.9$	$0.9 \pm 0.1 \pm 0.2$	$0.4 \pm 0.1 \pm 0.2$	< 0.1	23
$p_T^{miss}{}_D M_{T2B} D\zeta_{B}$	$26.8 \pm 3.6 \pm 6.3$	< 0.1	$6.3 \pm 1.1 \pm 2.6$	$4.3 \pm 1.0 \pm 2.5$	$0.5 \pm 0.2 \pm 0.2$	$9.0 \pm 3.0 \pm 3.3$	$46.9 \pm 4.9 \pm 8.0$	$0.8 \pm 0.1 \pm 0.2$	$0.6 \pm 0.1 \pm 0.1$	< 0.1	46
$p_T^{miss}{}_D M_{T2B} D\zeta_{C+}$	$9.3 \pm 1.9 \pm 7.9$	$1.1 \pm 0.8^{+1.5}_{-1.1}$	$3.6 \pm 0.9 \pm 1.5$	$5.7 \pm 1.2 \pm 2.5$	$0.2 \pm 0.1 \pm 0.1$	$13.1 \pm 3.0 \pm 3.6$	$32.9 \pm 4.0 \pm 9.3$	$0.7 \pm 0.1 \pm 0.1$	$0.4 \pm 0.1 \pm 0.1$	< 0.1	30
$p_T^{miss}{}_D M_{T2C} D\zeta_{A+}$	$9.9 \pm 2.2 \pm 4.7$	< 0.1	$1.1 \pm 0.4 \pm 0.9$	$1.8 \pm 0.6 \pm 1.1$	$0.4 \pm 0.1 \pm 0.2$	$12.6 \pm 3.0 \pm 3.5$	$25.7 \pm 3.8 \pm 6.1$	$2.0 \pm 0.2 \pm 0.3$	$1.1 \pm 0.1 \pm 0.2$	$0.1 \pm 0.1^{+0.2}_{-0.1}$	18
$p_T^{miss}{}_D M_{T2D} D\zeta_{A+}$	$0.0 \pm 0.0^{+0.4}_{-0.0}$	< 0.1	$0.0 \pm 0.0^{+0.4}_{-0.0}$	$1.2 \pm 0.5 \pm 0.9$	< 0.2	$5.2 \pm 1.9 \pm 2.0$	$6.7 \pm 2.0 \pm 2.3$	$3.6 \pm 0.3 \pm 0.6$	$1.9 \pm 0.2 \pm 0.3$	< 0.1	6
$p_T^{miss}{}_D M_{T2E} D\zeta_{A+}$	$0.7 \pm 0.7^{+1.9}_{-0.7}$	< 0.1	< 0.1	$0.7 \pm 0.4 \pm 0.7$	$0.4 \pm 0.1 \pm 0.3$	$2.5 \pm 1.3 \pm 1.4$	$4.4 \pm 1.6 \pm 2.5$	$8.7 \pm 0.4 \pm 0.8$	$4.4 \pm 0.3 \pm 0.5$	< 0.1	6
$p_T^{miss}{}_E M_{T2C+} D\zeta_{A+}$	< 0.1	< 0.1	< 0.1	$0.5 \pm 0.3^{+0.2}_{-0.5}$	< 0.1	$0.9 \pm 0.8 \pm 0.8$	$1.5 \pm 0.9 \pm 1.1$	$2.7 \pm 0.2 \pm 0.3$	$0.9 \pm 0.1 \pm 0.2$	< 0.1	1

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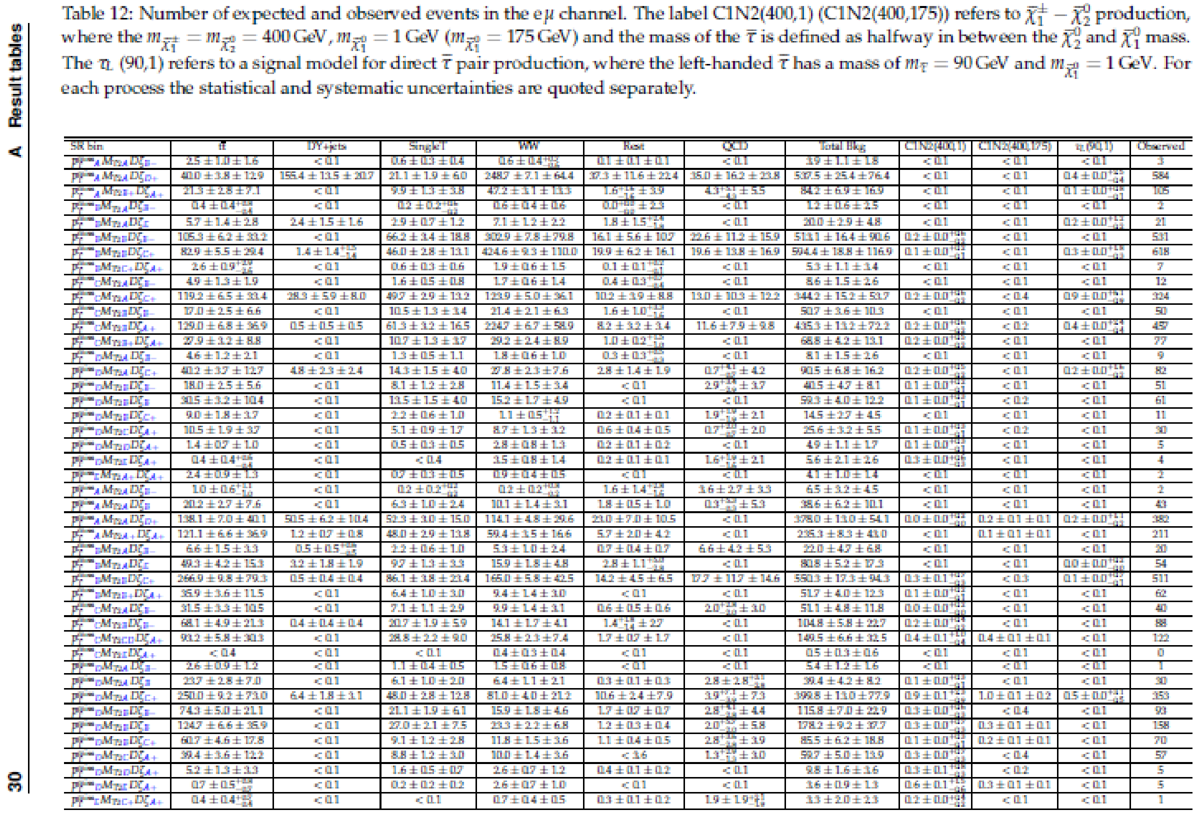
THIS IS JUST FUNNY (III)



A Result tables

Table 12: Number of expected and observed events in the $e\mu$ channel. The label C1N2(400,1) (C1N2(400,175)) refers to $\tilde{\chi}_1^{\pm} - \tilde{\chi}_2^0$ production, where the $m_{\tilde{\chi}_1^{\pm}} = m_{\tilde{\chi}_2^0} = 400\,\mathrm{GeV}$, $m_{\tilde{\chi}_1^0} = 1\,\mathrm{GeV}$ ($m_{\tilde{\chi}_1^0} = 175\,\mathrm{GeV}$) and the mass of the $\tilde{\tau}$ is defined as halfway in between the $\tilde{\chi}_2^0$ and $\tilde{\chi}_1^0$ mass. The τ_L (90,1) refers to a signal model for direct $\tilde{\tau}$ pair production, where the left-handed $\tilde{\tau}$ has a mass of $m_{\tilde{\tau}} = 90\,\mathrm{GeV}$ and $m_{\tilde{\chi}_1^0} = 1\,\mathrm{GeV}$. For each process the statistical and systematic uncertainties are quoted separately.

SR bin	$t\bar{t}$	DY+jets	SingleT	WW	Rest	QCD	Total Bkg	C1N2(400,1)	C1N2(400,175)	τ_L(90,1)	Observed
$p_T{}_A M_{T2A} D\zeta_{B-}$	2.5 ± 1.0 ± 1.6	< 0.1	0.6 ± 0.3 ± 0.4	0.6 ± 0.4 [illegible]	0.1 ± 0.1 ± 0.1	< 0.1	3.9 ± 1.1 ± 1.8	< 0.1	< 0.1	< 0.1	3
$p_T{}_A M_{T2A} D\zeta_{D+}$	40.0 ± 3.8 ± 12.9	155.4 ± 13.5 ± 20.7	21.1 ± 1.9 ± 6.0	248.7 ± 7.1 ± 64.4	37.3 ± 11.6 ± 22.4	35.0 ± 16.2 ± 23.8	537.5 ± 25.4 ± 76.4	< 0.1	< 0.1	0.4 ± 0.0 [illegible]	584
$p_T{}_A M_{T2B+} D\zeta_{A+}$	21.3 ± 2.8 ± 7.1	< 0.1	9.9 ± 1.3 ± 3.8	47.2 ± 3.1 ± 13.3	1.6 [illegible] ± 3.9	4.3 [illegible] ± 5.5	84.2 ± 6.9 ± 16.9	< 0.1	< 0.1	0.1 ± 0.0 [illegible]	105
$p_T{}_B M_{T2A} D\zeta_{B-}$	0.4 ± 0.4 [illegible]	< 0.1	0.2 ± 0.2 [illegible]	0.6 ± 0.4 ± 0.6	0.0 [illegible] ± 2.3	< 0.1	1.2 ± 0.6 ± 2.5	< 0.1	< 0.1	< 0.1	2
$p_T{}_B M_{T2A} D\zeta_{E}$	5.7 ± 1.4 ± 2.8	2.4 ± 1.5 ± 1.6	2.9 ± 0.7 ± 1.2	7.1 ± 1.2 ± 2.2	1.8 ± 1.5 [illegible]	< 0.1	20.0 ± 2.9 ± 4.8	< 0.1	< 0.1	0.2 ± 0.0 [illegible]	21
$p_T{}_B M_{T2B} D\zeta_{B-}$	105.3 ± 6.2 ± 33.2	< 0.1	66.2 ± 3.4 ± 18.8	302.9 ± 7.8 ± 79.8	16.1 ± 5.6 ± 10.7	22.6 ± 11.2 ± 15.9	513.1 ± 16.4 ± 90.6	0.2 ± 0.0 [illegible]	< 0.1	< 0.1	531
$p_T{}_B M_{T2B} D\zeta_{C+}$	82.9 ± 5.5 ± 29.4	1.4 ± 1.4 [illegible]	46.0 ± 2.8 ± 13.1	424.6 ± 9.3 ± 110.0	19.9 ± 6.2 ± 16.1	19.6 ± 13.8 ± 16.9	594.4 ± 18.8 ± 116.9	0.1 ± 0.0 [illegible]	< 0.1	0.3 ± 0.0 [illegible]	618
$p_T{}_B M_{T2C+} D\zeta_{A+}$	2.6 ± 0.9 [illegible]	< 0.1	0.6 ± 0.3 ± 0.6	1.9 ± 0.6 ± 1.5	0.1 ± 0.1 [illegible]	< 0.1	5.3 ± 1.1 ± 3.4	< 0.1	< 0.1	< 0.1	7
$p_T{}_C M_{T2A} D\zeta_{B-}$	4.9 ± 1.3 ± 1.9	< 0.1	1.6 ± 0.5 ± 0.8	1.7 ± 0.6 ± 1.4	0.4 ± 0.3 [illegible]	< 0.1	8.6 ± 1.5 ± 2.6	< 0.1	< 0.1	< 0.1	12
$p_T{}_C M_{T2A} D\zeta_{C+}$	119.2 ± 6.5 ± 33.4	28.3 ± 5.9 ± 8.0	49.7 ± 2.9 ± 13.2	123.9 ± 5.0 ± 36.1	10.2 ± 3.9 ± 8.8	13.0 ± 10.3 ± 12.2	344.2 ± 15.2 ± 53.7	0.2 ± 0.0 [illegible]	< 0.4	0.9 ± 0.0 [illegible]	324
$p_T{}_C M_{T2B} D\zeta_{B-}$	17.0 ± 2.5 ± 6.6	< 0.1	10.5 ± 1.3 ± 3.4	21.4 ± 2.1 ± 6.3	1.6 ± 1.0 [illegible]	< 0.1	50.7 ± 3.6 ± 10.3	< 0.1	< 0.1	< 0.1	50
$p_T{}_C M_{T2B} D\zeta_{A+}$	129.0 ± 6.8 ± 36.9	0.5 ± 0.5 ± 0.5	61.3 ± 3.2 ± 16.5	224.7 ± 6.7 ± 58.9	8.2 ± 3.2 ± 3.4	11.6 ± 7.9 ± 9.8	435.3 ± 13.2 ± 72.2	0.2 ± 0.0 [illegible]	< 0.2	0.4 ± 0.0 [illegible]	457
$p_T{}_C M_{T2B+} D\zeta_{A+}$	27.9 ± 3.2 ± 8.8	< 0.1	10.7 ± 1.3 ± 3.7	29.2 ± 2.4 ± 8.9	1.0 ± 0.2 [illegible]	< 0.1	68.8 ± 4.2 ± 13.1	0.2 ± 0.0 [illegible]	< 0.1	< 0.1	77
$p_T{}_D M_{T2A} D\zeta_{B-}$	4.6 ± 1.2 ± 2.1	< 0.1	1.3 ± 0.5 ± 1.1	1.8 ± 0.6 ± 1.0	0.3 ± 0.3 [illegible]	< 0.1	8.1 ± 1.5 ± 2.6	< 0.1	< 0.1	< 0.1	9
$p_T{}_D M_{T2A} D\zeta_{C+}$	40.2 ± 3.7 ± 12.7	4.8 ± 2.3 ± 2.4	14.3 ± 1.5 ± 4.0	27.8 ± 2.3 ± 7.6	2.8 ± 1.4 ± 1.9	0.7 [illegible] ± 4.2	90.5 ± 6.8 ± 16.2	0.2 ± 0.0 [illegible]	< 0.1	0.2 ± 0.0 [illegible]	82
$p_T{}_D M_{T2B} D\zeta_{B-}$	18.0 ± 2.5 ± 5.6	< 0.1	8.1 ± 1.2 ± 2.8	11.4 ± 1.5 ± 3.4	< 0.1	2.9 [illegible] ± 3.7	40.5 ± 4.7 ± 8.1	0.1 ± 0.0 [illegible]	< 0.1	< 0.1	51
$p_T{}_D M_{T2B} D\zeta_{B}$	30.5 ± 3.2 ± 10.4	< 0.1	13.5 ± 1.5 ± 4.0	15.2 ± 1.7 ± 4.9	< 0.1	< 0.1	59.3 ± 4.0 ± 12.2	0.1 ± 0.0 [illegible]	< 0.2	< 0.1	61
$p_T{}_D M_{T2B} D\zeta_{C+}$	9.0 ± 1.8 ± 3.7	< 0.1	2.2 ± 0.6 ± 1.0	1.1 ± 0.5 [illegible]	0.2 ± 0.1 ± 0.1	1.9 [illegible] ± 2.1	14.5 ± 2.7 ± 4.5	< 0.1	< 0.1	< 0.1	11
$p_T{}_D M_{T2C} D\zeta_{A+}$	10.5 ± 1.9 ± 3.7	< 0.1	5.1 ± 0.9 ± 1.7	8.7 ± 1.3 ± 3.2	0.6 ± 0.4 ± 0.5	0.7 [illegible] ± 2.0	25.6 ± 3.2 ± 5.5	0.1 ± 0.0 [illegible]	< 0.2	< 0.1	30
$p_T{}_D M_{T2D} D\zeta_{A+}$	1.4 ± 0.7 ± 1.0	< 0.1	0.5 ± 0.3 ± 0.5	2.8 ± 0.8 ± 1.3	0.2 ± 0.1 ± 0.2	< 0.1	4.9 ± 1.1 ± 1.7	0.1 ± 0.0 [illegible]	< 0.1	< 0.1	5
$p_T{}_D M_{T2E} D\zeta_{A+}$	0.4 ± 0.4 [illegible]	< 0.1	< 0.4	3.5 ± 0.8 ± 1.4	0.2 ± 0.1 ± 0.1	1.6 [illegible] ± 2.1	5.6 ± 2.1 ± 2.6	0.3 ± 0.0 [illegible]	< 0.1	< 0.1	4
$p_T{}_E M_{T2A+} D\zeta_{A+}$	2.4 ± 0.9 ± 1.3	< 0.1	0.7 ± 0.3 ± 0.5	0.9 ± 0.4 ± 0.5	< 0.1	< 0.1	4.1 ± 1.0 ± 1.4	< 0.1	< 0.1	< 0.1	2
$p_T{}_A M_{T2A} D\zeta_{B-}$	1.0 ± 0.6 [illegible]	< 0.1	0.2 ± 0.2 [illegible]	0.2 ± 0.2 [illegible]	1.6 ± 1.4 [illegible]	3.6 ± 2.7 ± 3.3	6.5 ± 3.2 ± 4.5	< 0.1	< 0.1	< 0.1	2
$p_T{}_A M_{T2A} D\zeta_{B}$	20.2 ± 2.7 ± 7.6	< 0.1	6.3 ± 1.0 ± 2.4	10.1 ± 1.4 ± 3.1	1.8 ± 0.5 ± 1.0	0.3 [illegible] ± 5.3	38.6 ± 6.2 ± 10.1	< 0.1	< 0.1	< 0.1	43
$p_T{}_A M_{T2A} D\zeta_{D+}$	138.1 ± 7.0 ± 40.1	50.5 ± 6.2 ± 10.4	52.3 ± 3.0 ± 15.0	114.1 ± 4.8 ± 29.6	23.0 ± 7.0 ± 10.5	< 0.1	378.0 ± 13.0 ± 54.1	0.0 ± 0.0 [illegible]	0.2 ± 0.1 ± 0.1	0.2 ± 0.0 [illegible]	382
$p_T{}_A M_{T2A+} D\zeta_{A+}$	121.1 ± 6.6 ± 36.9	1.2 ± 0.7 ± 0.8	48.0 ± 2.9 ± 13.8	59.4 ± 3.5 ± 16.6	5.7 ± 2.0 ± 4.2	< 0.1	235.3 ± 8.3 ± 43.0	< 0.1	0.1 ± 0.1 ± 0.1	< 0.1	211
$p_T{}_B M_{T2A} D\zeta_{B-}$	6.6 ± 1.5 ± 3.3	0.5 ± 0.5 [illegible]	2.2 ± 0.6 ± 1.0	5.3 ± 1.0 ± 2.4	0.7 ± 0.4 ± 0.7	6.6 ± 4.2 ± 5.3	22.0 ± 4.7 ± 6.8	< 0.1	< 0.1	< 0.1	20
$p_T{}_B M_{T2A} D\zeta_{E}$	49.3 ± 4.2 ± 15.3	3.2 ± 1.8 ± 1.9	9.7 ± 1.3 ± 3.3	15.9 ± 1.8 ± 4.8	2.8 ± 1.1 [illegible]	< 0.1	80.8 ± 5.2 ± 17.3	< 0.1	< 0.1	0.0 ± 0.0 [illegible]	54
$p_T{}_B M_{T2B} D\zeta_{C+}$	266.9 ± 9.8 ± 79.3	0.5 ± 0.4 ± 0.4	86.1 ± 3.8 ± 23.4	165.0 ± 5.8 ± 42.5	14.2 ± 4.5 ± 6.5	17.7 ± 11.7 ± 14.6	550.3 ± 17.3 ± 94.3	0.3 ± 0.1 [illegible]	< 0.3	0.1 ± 0.0 [illegible]	511
$p_T{}_B M_{T2B+} D\zeta_{A+}$	35.9 ± 3.6 ± 11.5	< 0.1	6.4 ± 1.0 ± 3.0	9.4 ± 1.4 ± 3.0	< 0.1	< 0.1	51.7 ± 4.0 ± 12.3	0.1 ± 0.0 [illegible]	< 0.1	< 0.1	62
$p_T{}_C M_{T2A} D\zeta_{B-}$	31.5 ± 3.3 ± 10.5	< 0.1	7.1 ± 1.1 ± 2.9	9.9 ± 1.4 ± 3.1	0.6 ± 0.5 ± 0.6	2.0 [illegible] ± 3.0	51.1 ± 4.8 ± 11.8	0.0 ± 0.0 [illegible]	< 0.1	< 0.1	40
$p_T{}_C M_{T2B} D\zeta_{B-}$	68.1 ± 4.9 ± 21.3	0.4 ± 0.4 ± 0.4	20.7 ± 1.9 ± 5.9	14.1 ± 1.7 ± 4.1	1.4 [illegible] ± 2.7	< 0.1	104.8 ± 5.8 ± 22.7	0.2 ± 0.0 [illegible]	< 0.1	< 0.1	88
$p_T{}_C M_{T2CD} D\zeta_{A+}$	93.2 ± 5.8 ± 30.3	< 0.1	28.8 ± 2.2 ± 9.0	25.8 ± 2.3 ± 7.4	1.7 ± 0.7 ± 1.7	< 0.1	149.5 ± 6.6 ± 32.5	0.4 ± 0.1 [illegible]	0.4 ± 0.1 ± 0.1	< 0.1	122
$p_T{}_C M_{T2E} D\zeta_{A+}$	< 0.4	< 0.1	< 0.1	0.4 ± 0.3 ± 0.4	< 0.1	< 0.1	0.5 ± 0.3 ± 0.6	< 0.1	< 0.1	< 0.1	0
$p_T{}_D M_{T2A} D\zeta_{B-}$	2.6 ± 0.9 ± 1.2	< 0.1	1.1 ± 0.4 ± 0.5	1.5 ± 0.6 ± 0.8	< 0.1	< 0.1	5.4 ± 1.2 ± 1.6	< 0.1	< 0.1	< 0.1	1
$p_T{}_D M_{T2A} D\zeta_{B}$	23.7 ± 2.8 ± 7.0	< 0.1	6.1 ± 1.0 ± 2.0	6.4 ± 1.1 ± 2.1	0.3 ± 0.1 ± 0.3	2.8 ± 2.8 [illegible]	39.4 ± 4.2 ± 8.2	0.1 ± 0.0 [illegible]	< 0.1	< 0.1	30
$p_T{}_D M_{T2A} D\zeta_{C+}$	250.0 ± 9.2 ± 73.0	6.4 ± 1.8 ± 3.1	48.0 ± 2.8 ± 12.8	81.0 ± 4.0 ± 21.2	10.6 ± 2.4 ± 7.9	3.9 [illegible] ± 7.3	399.8 ± 13.0 ± 77.9	0.9 ± 0.1 [illegible]	1.0 ± 0.1 ± 0.2	0.5 ± 0.0 [illegible]	353
$p_T{}_D M_{T2B} D\zeta_{B-}$	74.3 ± 5.0 ± 21.1	< 0.1	21.1 ± 1.9 ± 6.1	15.9 ± 1.8 ± 4.6	1.7 ± 0.7 ± 0.7	2.8 [illegible] ± 4.4	115.8 ± 7.0 ± 22.9	0.3 ± 0.0 [illegible]	< 0.4	< 0.1	93
$p_T{}_D M_{T2B} D\zeta_{B}$	124.7 ± 6.6 ± 35.9	< 0.1	27.0 ± 2.1 ± 7.5	23.3 ± 2.2 ± 6.8	1.2 ± 0.3 ± 0.4	2.0 [illegible] ± 5.8	178.2 ± 9.2 ± 37.7	0.3 ± 0.0 [illegible]	0.3 ± 0.1 ± 0.1	< 0.1	158
$p_T{}_D M_{T2B} D\zeta_{C+}$	60.7 ± 4.6 ± 17.8	< 0.1	9.1 ± 1.2 ± 2.8	11.8 ± 1.5 ± 3.6	1.1 ± 0.4 ± 0.5	2.8 [illegible] ± 3.9	85.5 ± 6.2 ± 18.8	0.1 ± 0.0 [illegible]	0.2 ± 0.1 ± 0.1	< 0.1	70
$p_T{}_D M_{T2C} D\zeta_{A+}$	39.4 ± 3.6 ± 12.2	< 0.1	8.8 ± 1.2 ± 3.0	10.0 ± 1.4 ± 3.6	< 3.6	1.3 [illegible] ± 3.0	59.7 ± 5.0 ± 13.9	0.3 ± 0.0 [illegible]	< 0.4	< 0.1	57
$p_T{}_D M_{T2D} D\zeta_{A+}$	5.2 ± 1.3 ± 3.3	< 0.1	1.6 ± 0.5 ± 0.7	2.6 ± 0.7 ± 1.2	0.4 ± 0.1 ± 0.2	< 0.1	9.8 ± 1.6 ± 3.6	0.3 ± 0.1 [illegible]	< 0.2	< 0.1	5
$p_T{}_D M_{T2E} D\zeta_{A+}$	0.7 ± 0.5 [illegible]	< 0.1	0.2 ± 0.2 ± 0.2	2.6 ± 0.7 ± 1.0	< 0.1	< 0.1	3.6 ± 0.9 ± 1.3	0.6 ± 0.1 [illegible]	0.3 ± 0.1 ± 0.1	< 0.1	5
$p_T{}_E M_{T2C+} D\zeta_{A+}$	0.4 ± 0.4 [illegible]	< 0.1	< 0.1	0.7 ± 0.4 ± 0.5	0.3 ± 0.1 ± 0.2	1.9 ± 1.9 [illegible]	3.3 ± 2.0 ± 2.3	0.2 ± 0.0 [illegible]	< 0.1	< 0.1	1

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