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NLO-NLL wino-like chargino-neutralino ($\chi_{1,2}^{\pm,0}$) cross sections

The following cross sections are for pure wino-like chargino-neutralino pair production (sum of $\chi_{1,2}^{\pm,0}$ and $\tilde{\chi}_{1,2}^{\pm,0}$, and also for each subprocess individually). They have been calculated for $\sqrt{s} = 14$ TeV at NLO-NLL using the resummino code from B. Fuks et al with CTEQ6.6 and MSTW2008nlo90cl PDFs. The calculation assumes the chargino and neutralino are degenerate, with mass denoted below as $m_{\tilde{\chi}}$. Final numbers are calculated using the PDF4LHC recommendations for the two sets of cross sections.

When using these cross sections, please cite the following two references, available below in bibtex format:

Show References Hide References

```
@article{Fuks:2012qx,
  author      = "Fuks, Benjamin and Klasen, Michael and Lamprea, David R.
                and Rothering, Marcel",
  title       = "{Gaugino production in proton-proton collisions at a
                center-of-mass energy of 8 TeV}",
  journal     = "JHEP",
  volume      = "10",
  pages       = "081",
  doi         = "10.1007/JHEP10(2012)081",
  year        = "2012",
  eprint      = "1207.2159",
  archivePrefix = "arXiv",
  primaryClass = "hep-ph",
  reportNumber = "IPHC-PHENO-12-07, MS-TP-12-05",
  SLACcitation = "%CITATION = ARXIV:1207.2159;%",
}
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@article{Fuks:2013vua,
  author      = "Fuks, Benjamin and Klasen, Michael and Lamprea, David R.
                and Rothering, Marcel",
  title       = "{Precision predictions for electroweak superpartner
                production at hadron colliders with {\sc Resummino}}",
  journal     = "Eur. Phys. J. C",
  volume      = "73",
  pages       = "2480",
  doi         = "10.1140/epjc/s10052-013-2480-0",
  year        = "2013",
  eprint      = "1304.0790",
  archivePrefix = "arXiv",
  primaryClass = "hep-ph",
  reportNumber = "CERN-PH-TH-2013-064, IPHC-PHENO-13-02, MS-TP-13-06",
  SLACcitation = "%CITATION = ARXIV:1304.0790;%",
}
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MSTW2008nlo90cl numbers

Sum of NLO-NLL wino-like $\chi_{1,2}^{\pm,0}$ and $\tilde{\chi}_{1,2}^{\pm,0}$

Show table Hide table

m [GeV]	xsec [fb]	-scale unc [%]	-pdf unc [%]	+scale unc [%]	+pdf unc [%]
100	25134	-1.3	-3.3	0.42	3.4
125	11216	-0.78	-3.4	0.31	3.5
150	5829.8	-0.5	-3.4	0.19	3.6

SUSYCrossSections14TeVn2x1wino < LHCPhysics < TWiki

175	3345.7	-0.5	-3.6	0.13	3.6
200	2059.6	-0.56	-3.7	0.26	3.7
225	1336.1	-0.56	-3.8	0.39	3.9
250	902.63	-0.57	-3.9	0.46	4
275	629.97	-0.57	-4	0.56	4.1
300	451.45	-0.53	-4.1	0.63	4.3
325	330.78	-0.47	-4.3	0.77	4.4
350	246.93	-0.37	-4.3	0.8	4.6
375	187.41	-0.3	-4.5	0.84	4.7
400	144.26	-0.33	-4.6	0.85	4.9
425	112.4	-0.3	-4.7	0.92	5
450	88.53	-0.37	-4.7	1.1	5.2
475	70.4	-0.31	-4.9	0.97	5.3
500	56.42	-0.27	-4.9	1	5.5
525	45.61	-0.27	-5	0.92	5.6
550	37.11	-0.21	-4.9	1	5.9
575	30.43	-0.4	-5.3	0.85	6
600	25.05	-0.49	-5.3	0.86	6.2
625	20.75	-0.5	-5.4	0.93	6.4
650	17.27	-0.49	-5.5	0.94	6.6
675	14.42	-0.66	-5.5	0.72	6.8
700	12.11	-0.56	-5.5	0.68	7.1
725	10.18	-0.49	-5.2	0.68	7.5
750	8.6	-0.57	-5.7	0.81	7.4
775	7.29	-0.73	-6.1	0.81	7.5
800	6.19	-0.7	-6	0.96	7.9
825	5.26	-0.75	-6.2	0.84	8
850	4.49	-0.83	-6.1	0.94	8.6
875	3.85	-0.67	-6.3	0.79	8.5
900	3.3	-0.65	-6.4	0.89	8.6
925	2.84	-0.75	-6.5	0.77	8.9
950	2.44	-0.85	-6.7	0.75	9.1
975	2.11	-0.83	-6.8	0.65	9.5
1000	1.83	-1	-7.4	0.77	9.4
1025	1.59	-1.1	-7.5	0.7	9.6
1050	1.37	-1	-7.5	0.8	10
1075	1.2	-1.1	-8	0.58	10
1100	1.04	-1.2	-7.9	0.48	10
1125	0.9	-1.2	-7.9	0.72	11
1150	0.78	-0.93	-7.9	0.85	11
1175	0.68	-1.1	-8.4	0.85	11
1200	0.6	-1.1	-8.9	0.73	12
1225	0.52	-1.7	-8.1	1	13
1250	0.45	-1.3	-9.1	0.87	12
1275	0.4	-1.2	-9.7	1.1	13
1300	0.35	-1.4	-9.7	0.93	13
1325	0.3	-1.4	-9.9	0.9	13
1350	0.27	-1.5	-10	0.92	14
1375	0.23	-1.4	-11	1.2	14
1400	0.2	-1.5	-12	0.8	14

1425	0.18	-1.8	-12	0.24	13
1450	0.16	-2.4	-14	0.8	14
1475	0.13	-3	-14	0.38	14
1500	0.12	-1.3	-13	0.72	16

NLO-NLL wino-like $+1 \quad 0_2$

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m [GeV]	xsec [fb]	-scale unc [%]	-pdf unc [%]	+scale unc [%]	+pdf unc [%]
100	15203	-1.3	-3.1	0.7	3.4
125	6888.9	-0.7	-3.2	0.5	3.4
150	3630.6	-0.5	-3.2	0.3	3.5
175	2110.7	-0.5	-3.3	0.2	3.5
200	1314.6	-0.6	-3.4	0.3	3.6
225	861.91	-0.6	-3.5	0.5	3.8
250	588.17	-0.6	-3.6	0.6	3.9
275	414.35	-0.6	-3.7	0.7	4
300	299.54	-0.6	-3.8	0.8	4.1
325	221.3	-0.5	-3.9	0.9	4.2
350	166.47	-0.4	-3.9	1	4.4
375	127.26	-0.3	-4.1	1.1	4.5
400	98.63	-0.3	-4.2	1.1	4.7
425	77.35	-0.3	-4.3	1.2	4.9
450	61.31	-0.4	-4.3	1.4	5.1
475	49.07	-0.4	-4.5	1.3	5.1
500	39.53	-0.3	-4.5	1.4	5.4
525	32.13	-0.3	-4.6	1.3	5.5
550	26.28	-0.3	-4.5	1.3	5.8
575	21.65	-0.4	-4.9	1.2	5.8
600	17.91	-0.6	-4.9	1.2	6
625	14.9	-0.5	-5	1.3	6.2
650	12.45	-0.6	-5.1	1.3	6.4
675	10.44	-0.8	-5.1	1	6.6
700	8.8	-0.7	-5.2	0.9	6.7
725	7.43	-0.6	-5.1	0.9	7
750	6.29	-0.7	-5.3	1	7.1
775	5.35	-0.7	-5.6	1.1	7.3
800	4.55	-0.7	-5.4	1.3	7.6
825	3.88	-0.7	-5.7	1.1	7.7
850	3.32	-0.8	-5.6	1.2	8.4
875	2.85	-0.7	-5.7	1	8.4
900	2.45	-0.7	-5.9	1.1	8.5
925	2.11	-0.8	-5.9	1	8.5
950	1.82	-0.8	-6.1	0.9	8.7
975	1.58	-0.7	-6.1	0.8	9.4
1000	1.37	-0.9	-6.8	0.9	8.7
1025	1.19	-1	-6.9	0.8	8.9
1050	1.03	-0.8	-6.7	0.9	9.4
1075	0.9	-1	-7.2	0.6	9.5
1100	0.78	-1.1	-7.2	0.4	9.5

1125	0.68	-1.2	-7.1	0.7	10
1150	0.59	-1	-7	0.9	10.4
1175	0.51	-1.2	-7.4	0.9	10.3
1200	0.45	-1.1	-8	0.8	10.7
1225	0.39	-1.8	-6.7	1.2	11.8
1250	0.34	-1.3	-8.2	0.8	10.7
1275	0.3	-1.3	-8.6	1.1	11.6
1300	0.26	-1.5	-8.5	0.9	11.8
1325	0.23	-1.5	-8.8	0.9	11.9
1350	0.2	-1.5	-9.1	1	12.2
1375	0.17	-1.4	-9.3	1.3	12.7
1400	0.15	-1.4	-10.4	0.8	11.9
1425	0.14	-1.8	-11.2	0	11.5
1450	0.12	-2.8	-13.6	0.9	11.7
1475	0.1	-3.6	-12.7	0.5	12.6
1500	0.09	-1.5	-11.2	0.8	13.5

NLO-NLL wino-like $^{-1}_{1} \quad ^{0}_{2}$

Show table Hide table

m [GeV]	xsec [fb]	-scale unc [%]	-pdf unc [%]	+scale unc [%]	+pdf unc [%]
100	9931.3	-1.2	-3.6	0	3.5
125	4327.2	-0.9	-3.7	0	3.6
150	2199.2	-0.5	-3.8	0	3.7
175	1235	-0.5	-4	0	3.8
200	745.01	-0.5	-4.1	0.2	4
225	474.16	-0.5	-4.3	0.2	4.1
250	314.46	-0.5	-4.5	0.2	4.3
275	215.62	-0.5	-4.6	0.3	4.4
300	151.91	-0.4	-4.8	0.3	4.6
325	109.48	-0.4	-5	0.5	4.7
350	80.46	-0.3	-5.1	0.4	4.9
375	60.15	-0.3	-5.2	0.3	5.1
400	45.63	-0.4	-5.4	0.3	5.2
425	35.05	-0.3	-5.6	0.3	5.3
450	27.22	-0.3	-5.7	0.3	5.4
475	21.33	-0.1	-5.7	0.2	5.8
500	16.89	-0.2	-5.8	0.2	5.9
525	13.48	-0.2	-6	0	6
550	10.83	-0	-6	0.3	6.3
575	8.78	-0.4	-6.3	0	6.4
600	7.14	-0.2	-6.2	0	6.8
625	5.85	-0.5	-6.4	0	6.9
650	4.82	-0.2	-6.4	0	7.2
675	3.98	-0.3	-6.6	0	7.3
700	3.31	-0.2	-6.3	0.1	8.1
725	2.75	-0.2	-5.6	0.1	9
750	2.31	-0.2	-6.9	0.3	8.3
775	1.94	-0.8	-7.6	0	8.1
800	1.64	-0.7	-7.5	0	8.6

SUSYCrossSections14TeVn2x1wino < LHCPHysics < TWiki

825	1.38	-0.9	-7.6	0.1	8.9
850	1.17	-0.9	-7.7	0.2	9.1
875	1	-0.6	-7.9	0.2	8.9
900	0.85	-0.5	-8	0.3	8.9
925	0.73	-0.6	-8.3	0.1	10.2
950	0.62	-1	-8.6	0.3	10.4
975	0.53	-1.2	-8.8	0.2	9.9
1000	0.46	-1.3	-9	0.4	11.4
1025	0.4	-1.4	-9.4	0.4	11.7
1050	0.34	-1.6	-10	0.5	12
1075	0.3	-1.5	-10.3	0.5	12.2
1100	0.26	-1.3	-10.1	0.7	13
1125	0.22	-1.4	-10.4	0.8	13.5
1150	0.19	-0.7	-10.8	0.7	13.8
1175	0.17	-1	-11.2	0.7	14.3
1200	0.15	-1.1	-11.7	0.5	14.5
1225	0.13	-1.2	-12.4	0.4	14.9
1250	0.11	-1.3	-12	1.1	15.8
1275	0.1	-1.1	-13	0.9	15.8
1300	0.09	-1.3	-13	1	16.7
1325	0.07	-1.2	-13.6	0.9	17.1
1350	0.07	-1.4	-14.2	0.7	17.6
1375	0.06	-1.4	-14.6	1	18.3
1400	0.05	-1.9	-14.8	0.8	18.5
1425	0.04	-1.9	-15.1	1.1	19.5
1450	0.04	-1.1	-16.3	0.5	19.4
1475	0.03	-0.8	-17.4	0	20
1500	0.03	-0.7	-16.5	0.5	21.6

-- LesyaShchutska - 2017-04-04

This topic: LHCPHysics > SUSYCrossSections14TeVn2x1wino

Topic revision: r2 - 2017-09-26 - AnadiCanepa



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