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SM Higgs production cross sections at $\sqrt{s} = 14$ TeV (CERN Report 2011-002 Numbers)

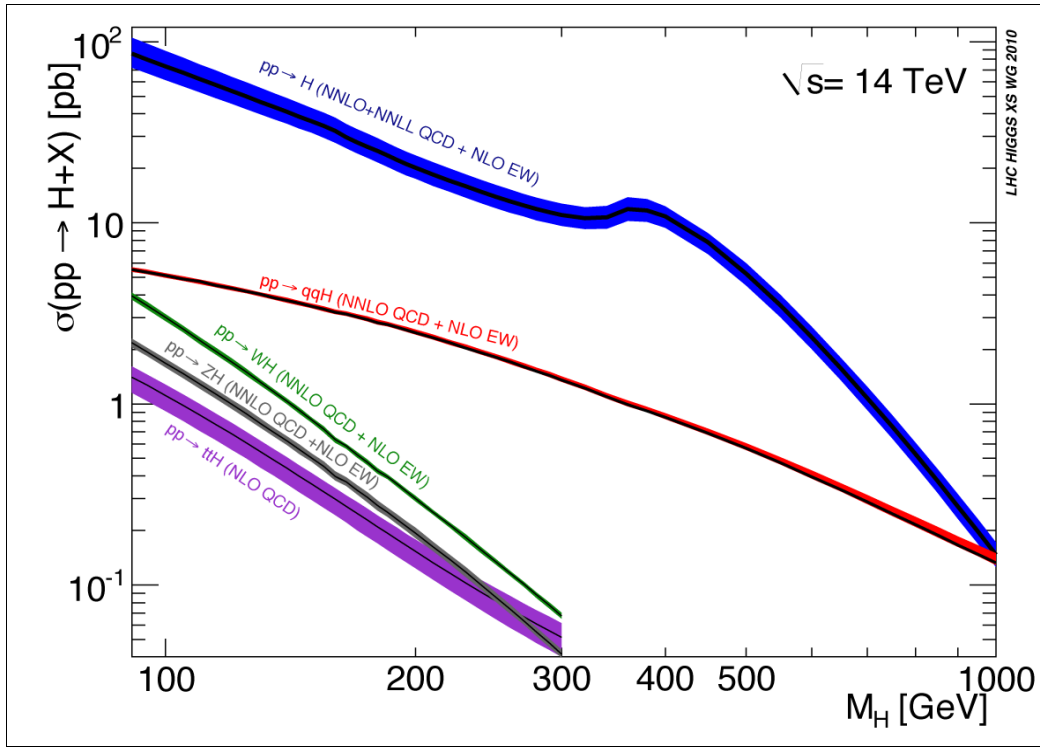


Figure 1: Standard Model Higgs boson production cross sections.

gluon-gluon Fusion Process

The central value is taken as the central value of the "envelope" of dFG and ABPS calculations. Where the total uncertainty is the linear combination of the PDF+alpha and the scale uncertainties.

m_H (GeV)	Cross Section (pb)	+error %	-error %	+scale %	-scale %	+(PDF+ α_s) %	-(PDF+ α_s) %
90	87.55	23.0	-16.4	15.5	-10.1	7.6	-6.2
95	79.83	22.3	-16.0	14.8	-9.8	7.5	-6.2
100	73.27	21.5	-16.0	14.1	-9.8	7.4	-6.2
105	67.34	21.1	-15.6	13.7	-9.5	7.4	-6.2
110	62.16	20.6	-15.3	13.2	-9.2	7.4	-6.2
115	57.57	20.2	-15.0	12.9	-8.9	7.4	-6.2
120	53.49	20.0	-14.8	12.6	-8.6	7.4	-6.2
125	49.85	19.6	-14.6	12.2	-8.4	7.4	-6.2
130	46.55	19.5	-14.4	12.1	-8.2	7.4	-6.2
135	43.61	19.1	-14.2	11.8	-8.0	7.3	-6.2
140	40.93	18.9	-13.9	11.6	-7.7	7.3	-6.2
145	38.49	18.8	-13.7	11.5	-7.5	7.3	-6.3
150	36.27	18.7	-13.5	11.5	-7.2	7.3	-6.3
155	34.22	18.6	-13.6	11.3	-7.4	7.3	-6.3
160	32.10	18.6	-13.7	11.4	-7.5	7.3	-6.3
165	29.77	17.8	-13.4	10.6	-7.2	7.2	-6.2
170	27.93	17.7	-13.3	10.4	-6.9	7.2	-6.3
175	26.36	17.7	-13.4	10.5	-7.0	7.2	-6.3

180	24.92	17.8	-13.4	10.6	-7.1	7.2	-6.3
185	23.49	17.2	-13.4	10.0	-6.9	7.1	-6.4
190	22.21	17.1	-13.2	9.9	-6.8	7.1	-6.4
195	21.10	17.0	-13.2	9.9	-6.8	7.1	-6.4
200	20.16	16.8	-13.2	9.7	-6.8	7.1	-6.4
210	18.49	16.6	-13.3	9.5	-6.7	7.1	-6.5
220	17.08	16.4	-13.3	9.3	-6.7	7.1	-6.6
230	15.86	16.3	-13.2	9.2	-6.6	7.0	-6.6
240	14.82	16.1	-13.2	9.1	-6.5	7.0	-6.7
250	13.92	16.0	-13.2	9.0	-6.4	7.0	-6.8
260	13.14	15.9	-13.3	8.8	-6.3	7.0	-6.9
270	12.47	15.7	-13.1	8.7	-6.2	7.0	-6.9
280	11.90	15.7	-13.1	8.7	-6.1	7.0	-7.0
290	11.43	15.4	-13.2	8.5	-6.1	6.9	-7.0
300	11.05	15.3	-13.0	8.4	-5.9	6.9	-7.1
320	10.59	15.4	-12.9	8.5	-5.9	6.9	-7.0
340	10.72	15.9	-13.4	9.0	-6.3	6.9	-7.1
360	11.91	16.5	-13.8	9.6	-6.7	6.9	-7.1
380	11.72	15.3	-13.3	8.3	-6.2	6.9	-7.2
400	10.87	13.2	-13.6	6.3	-6.5	6.9	-7.1
450	7.790	12.6	-13.7	5.6	-6.5	7.0	-7.2
500	5.255	13.7	-13.9	6.6	-6.7	7.1	-7.3
550	3.493	14.2	-14.1	6.8	-6.5	7.3	-7.5
600	2.332	14.5	-14.0	7.1	-6.5	7.4	-7.5
650	1.576	14.5	-13.8	6.9	-6.2	7.5	-7.5
700	1.078	15.2	-14.1	7.5	-6.5	7.8	-7.6
750	0.7498	15.5	-13.9	7.5	-6.2	8.0	-7.7
800	0.5280	15.6	-14.0	7.5	-6.2	8.1	-7.8
850	0.3766	15.9	-14.2	7.6	-6.3	8.3	-7.9
900	0.2723	16.3	-14.5	7.9	-6.4	8.4	-8.1
950	0.1987	16.8	-14.5	8.2	-6.3	8.6	-8.2
1000	0.1472	16.8	-14.6	8.1	-6.3	8.7	-8.3

VBF Process

m_H (GeV)	Cross Section (pb)	+error %	-error %	+scale %	-scale %	+(PDF+ _s) %	-(PDF+ _s) %
90	5.569	2.9	-3.0	1.0	-0.4	1.9	-2.6
95	5.338	3.0	-3.1	1.0	-0.5	2.0	-2.6
100	5.114	2.8	-3.1	0.8	-0.5	2.0	-2.6
105	4.900	3.2	-2.9	1.2	-0.3	2.0	-2.6
110	4.750	2.2	-3.9	0.2	-1.3	2.0	-2.6
115	4.520	2.9	-3.0	0.9	-0.4	2.0	-2.6
120	4.361	2.5	-3.5	0.4	-0.9	2.1	-2.6
125	4.180	2.8	-3.0	0.7	-0.4	2.1	-2.6
130	4.029	2.5	-3.1	0.4	-0.5	2.1	-2.6
135	3.862	3.1	-2.8	0.9	-0.2	2.2	-2.6
140	3.732	2.6	-3.3	0.5	-0.8	2.2	-2.6
145	3.590	3.0	-3.0	0.8	-0.4	2.2	-2.6
150	3.460	2.8	-3.0	0.6	-0.4	2.2	-2.6
155	3.332	2.9	-3.0	0.7	-0.4	2.2	-2.6

160	3.198	3.1	-2.8	0.9	-0.2	2.3	-2.6
165	3.137	3.0	-2.9	0.7	-0.3	2.3	-2.6
170	3.033	2.8	-3.0	0.5	-0.4	2.3	-2.6
175	2.922	3.5	-2.8	1.1	-0.2	2.3	-2.6
180	2.805	3.3	-2.8	0.9	-0.2	2.4	-2.6
185	2.740	2.8	-2.9	0.4	-0.3	2.4	-2.6
190	2.652	2.7	-2.9	0.3	-0.3	2.4	-2.6
195	2.566	2.9	-2.9	0.4	-0.3	2.4	-2.6
200	2.472	3.2	-2.7	0.7	-0.1	2.5	-2.6
210	2.315	3.2	-2.7	0.7	-0.1	2.5	-2.6
220	2.171	2.9	-3.1	0.4	-0.5	2.6	-2.6
230	2.036	3.2	-2.8	0.6	-0.2	2.6	-2.6
240	1.918	3.0	-2.7	0.4	-0.1	2.7	-2.6
250	1.807	2.9	-3.0	0.2	-0.4	2.7	-2.6
260	1.711	2.9	-3.7	0.2	-1.1	2.8	-2.6
270	1.606	3.0	-2.9	0.2	-0.3	2.8	-2.6
280	1.514	3.2	-2.7	0.4	-0.1	2.8	-2.6
290	1.436	3.2	-2.8	0.3	-0.2	2.9	-2.6
300	1.358	3.2	-2.9	0.2	-0.3	2.9	-2.6
320	1.220	3.2	-2.8	0.2	-0.2	3.0	-2.6
340	1.094	3.3	-2.8	0.2	-0.2	3.1	-2.6
360	0.9930	3.3	-2.8	0.1	-0.2	3.2	-2.6
380	0.9148	3.4	-2.7	0.1	-0.1	3.3	-2.6
400	0.8422	3.6	-2.7	0.2	-0.1	3.4	-2.6
450	0.6893	3.8	-3.0	0.2	-0.4	3.7	-2.6
500	0.5684	4.0	-2.9	0.1	-0.3	3.9	-2.6
550	0.4724	4.4	-3.0	0.3	-0.4	4.1	-2.6
600	0.3965	4.7	-3.1	0.3	-0.5	4.4	-2.6
650	0.3360	4.9	-3.2	0.3	-0.6	4.6	-2.6
700	0.2872	5.2	-3.4	0.4	-0.8	4.9	-2.6
750	0.2476	5.6	-3.5	0.5	-0.9	5.1	-2.6
800	0.2155	5.8	-3.7	0.5	-1.1	5.3	-2.6
850	0.1885	6.3	-3.6	0.7	-1.0	5.6	-2.6
900	0.1666	6.5	-3.8	0.6	-1.2	5.8	-2.6
950	0.1484	6.6	-4.0	0.5	-1.4	6.1	-2.6
1000	0.1330	7.0	-4.0	0.7	-1.4	6.3	-2.6

HW Process

m_H (GeV)	Cross Section (pb)	+error %	- error %	+scale %	-scale %	+(PDF+ α_s) %	-(PDF+ α_s) %
90	4.090	4.3	-4.6	0.4	-0.7	3.9	-3.9
95	3.499	4.4	-4.5	0.6	-0.7	3.8	-3.8
100	3.002	4.5	-4.3	0.8	-0.6	3.7	-3.7
105	2.596	4.1	-4.0	0.6	-0.5	3.5	-3.5
110	2.246	4.1	-4.6	0.3	-0.8	3.8	-3.8
115	1.952	4.5	-4.0	0.7	-0.2	3.8	-3.8
120	1.710	4.4	-4.1	0.6	-0.3	3.8	-3.8
125	1.504	4.1	-4.4	0.3	-0.6	3.8	-3.8
130	1.324	3.8	-3.7	0.5	-0.4	3.3	-3.3
135	1.167	3.5	-3.4	0.6	-0.5	2.9	-2.9

140	1.034	3.3	-3.8	0.2	-0.7	3.1	-3.1
145	0.9200	3.8	-3.7	0.5	-0.4	3.3	-3.3
150	0.8156	3.0	-3.3	0.3	-0.6	2.7	-2.7
155	0.7255	3.5	-3.7	0.4	-0.6	3.1	-3.1
160	0.6341	3.3	-3.6	0.2	-0.5	3.1	-3.1
165	0.5850	2.6	-3.0	0.2	-0.6	2.4	-2.4
170	0.5260	3.1	-3.5	0.3	-0.7	2.8	-2.8
175	0.4763	3.4	-3.2	0.5	-0.3	2.9	-2.9
180	0.4274	3.2	-3.4	0.4	-0.6	2.8	-2.8
185	0.3963	2.9	-3.2	0.4	-0.7	2.5	-2.5
190	0.3600	3.0	-3.4	0.2	-0.6	2.8	-2.8
195	0.3291	3.0	-3.4	0.3	-0.7	2.7	-2.7
200	0.3004	3.4	-3.5	0.4	-0.5	3.0	-3.0
210	0.2526	2.8	-3.3	0.2	-0.7	2.6	-2.6
220	0.2138	3.4	-3.3	0.6	-0.5	2.8	-2.8
230	0.1826	3.9	-4.0	0.4	-0.5	3.5	-3.5
240	0.1561	3.7	-3.8	0.4	-0.5	3.3	-3.3
250	0.1343	3.2	-3.7	0.2	-0.7	3.0	-3.0
260	0.1161	3.0	-3.5	0.2	-0.7	2.8	-2.8
270	0.1009	3.1	-3.2	0.5	-0.6	2.6	-2.6
280	0.08781	3.4	-3.6	0.4	-0.6	3.0	-3.0
290	0.07714	3.5	-3.8	0.3	-0.6	3.2	-3.2
300	0.06755	3.9	-3.8	0.6	-0.5	3.3	-3.3

HZ Process

m_H (GeV)	Cross Section (pb)	+error %	- error %	+scale %	-scale %	+(PDF+ α_s) %	-(PDF+ α_s) %
90	2.245	5.3	-5.7	1.3	-1.7	4.0	-4.0
95	1.941	5.2	-5.2	1.6	-1.6	3.6	-3.6
100	1.683	5.7	-5.3	1.9	-1.5	3.8	-3.8
105	1.468	5.4	-5.4	1.7	-1.7	3.7	-3.7
110	1.283	6.1	-5.6	2.1	-1.6	4.0	-4.0
115	1.130	6.2	-5.2	2.5	-1.5	3.7	-3.7
120	0.9967	6.0	-5.4	2.4	-1.8	3.6	-3.6
125	0.8830	6.4	-5.5	2.7	-1.8	3.7	-3.7
130	0.7846	6.3	-5.2	2.9	-1.8	3.4	-3.4
135	0.6981	5.9	-5.2	2.9	-2.2	3.0	-3.0
140	0.6256	5.8	-5.2	2.8	-2.2	3.0	-3.0
145	0.5601	6.7	-5.5	3.3	-2.1	3.4	-3.4
150	0.5016	6.0	-4.7	3.3	-2.0	2.7	-2.7
155	0.4513	6.5	-5.6	3.3	-2.4	3.2	-3.2
160	0.3986	6.6	-5.5	3.5	-2.4	3.1	-3.1
165	0.3705	6.4	-4.9	3.8	-2.3	2.6	-2.6
170	0.3355	6.5	-5.4	3.5	-2.4	3.0	-3.0
175	0.3044	6.6	-5.7	3.5	-2.6	3.1	-3.1
180	0.2744	6.7	-5.8	3.7	-2.8	3.0	-3.0
185	0.2524	6.1	-5.5	3.5	-2.9	2.6	-2.6
190	0.2301	6.5	-5.9	3.5	-2.9	3.0	-3.0
195	0.2112	6.4	-5.8	3.5	-2.9	2.9	-2.9
200	0.1936	6.7	-6.1	3.6	-3.0	3.1	-3.1

210	0.1628	6.5	-5.1	3.9	-2.5	2.6	-2.6
220	0.1380	6.3	-5.6	3.4	-2.7	2.9	-2.9
230	0.1173	7.0	-6.2	3.4	-2.6	3.6	-3.6
240	0.09996	6.5	-5.9	3.1	-2.5	3.4	-3.4
250	0.08540	6.2	-5.5	3.0	-2.3	3.2	-3.2
260	0.07341	6.1	-5.2	3.0	-2.1	3.1	-3.1
270	0.06325	5.3	-4.7	2.5	-1.9	2.8	-2.8
280	0.05474	5.7	-5.0	2.5	-1.8	3.2	-3.2
290	0.04769	5.4	-4.7	2.2	-1.5	3.2	-3.2
300	0.04156	5.6	-5.2	2.0	-1.6	3.6	-3.6

ttH Process

m_H (GeV)	Cross Section (pb)	+error %	-error %	+scale %	-scale %	+(PDF+ α_s) %	-(PDF+ α_s) %
90	1.449	14.9	-18.0	6.2	-9.3	8.7	-8.7
95	1.268	14.8	-18.0	6.1	-9.3	8.7	-8.7
100	1.114	14.8	-18.0	6.1	-9.3	8.7	-8.7
105	0.9816	14.7	-18.0	6.0	-9.3	8.7	-8.7
110	0.8681	14.8	-18.1	6.0	-9.3	8.8	-8.8
115	0.7699	14.8	-18.1	6.0	-9.3	8.8	-8.8
120	0.6850	14.7	-18.1	5.9	-9.3	8.8	-8.8
125	0.6113	14.8	-18.2	5.9	-9.3	8.9	-8.9
130	0.5472	14.8	-18.2	5.9	-9.3	8.9	-8.9
135	0.4910	14.8	-18.2	5.9	-9.3	8.9	-8.9
140	0.4419	14.8	-18.2	5.9	-9.3	8.9	-8.9
145	0.3989	14.9	-18.3	5.9	-9.3	9.0	-9.0
150	0.3609	14.9	-18.3	5.9	-9.3	9.0	-9.0
155	0.3275	14.9	-18.4	5.9	-9.4	9.0	-9.0
160	0.2980	15.0	-18.5	5.9	-9.4	9.1	-9.1
165	0.2718	15.1	-18.5	6.0	-9.4	9.1	-9.1
170	0.2487	15.7	-18.9	6.5	-9.7	9.2	-9.2
175	0.2279	15.8	-18.9	6.6	-9.7	9.2	-9.2
180	0.2095	15.8	-19.0	6.6	-9.8	9.2	-9.2
185	0.1930	15.8	-19.0	6.6	-9.8	9.2	-9.2
190	0.1783	16.0	-19.2	6.7	-9.9	9.3	-9.3
195	0.1650	16.0	-19.2	6.7	-9.9	9.3	-9.3
200	0.1532	16.2	-19.4	6.8	-10.0	9.4	-9.4
210	0.1329	16.4	-19.5	7.0	-10.1	9.4	-9.4
220	0.1162	16.7	-19.8	7.2	-10.3	9.5	-9.5
230	0.1025	17.1	-20.0	7.5	-10.4	9.6	-9.6
240	0.09109	17.3	-20.3	7.6	-10.6	9.7	-9.7
250	0.08156	17.7	-20.5	8.0	-10.8	9.7	-9.7
260	0.07351	18.1	-20.8	8.3	-11.0	9.8	-9.8
270	0.06667	18.5	-21.1	8.6	-11.2	9.9	-9.9
280	0.06081	19.0	-21.4	9.0	-11.4	10.0	-10.0
290	0.05575	19.4	-21.7	9.3	-11.6	10.1	-10.1
300	0.05133	19.8	-21.9	9.7	-11.8	10.1	-10.1

-- Main. FabianStoeckli, ChiaraMariotti and ReiTanaka - 24-Dec-2010

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